THE JOURNAL

OF THE

OKLAHOMA STATE MEDICAL ASSOCIATION

VOLUME XXVI MUSKOGEE, OKLAHOMA, SEPTEMBER, 1933. NUMBER 9

SOME PRACTICAL POINTS IN HAND SURGERY

C. R. SALSBURY, M.D., C.M.
OKLAHOMA CITY

As it is almost four years since I gave up the practice of traumatic surgery, it is quite impossible for me to present patients, statistics or photographs. It seemed inadvisable, therefore, to attempt a detailed analysis of any one particular field of hand surgery. I have decided, accordingly, to refer rather briefly to several different problems, confining my remarks to the presentation of some original modifications of common procedure and a brief review of some of the more important general principles.

ANESTHESIA

I should like to draw your attention, particularly, to the very wide application of local anesthesia in hand surgery. It is worthy of consideration in every hand injury.

One must decide, in every case, whether or not to use anesthesia, and then between general and local.

The former question is easily decided. Unless simple inspection clearly indicates that no treatment, beyond sterilization and dressing, will be required, anesthesia should be used. In order to spare the patient pain, one is prone to omit a complete examination and such complications as foreign bodies and severed tendons and nerves are frequetly overlooked.

The decision between local and general anesthesia is almost as easily made. Local anesthesia offers the following advantages:

1. Safety.
2. No extra assistant is required.
3. It may be introduced to facilitate the examination and still be serviceable after preparations for repair are completed. One would hesitate to give patient so long a general, or to anesthetize him twice.
4. The patient, by active muscular movements, is able to assist in the identification of severed tendons or nerves.
5. The patient may leave the office immediately after treatment is completed.

The use of local anesthesia may be contra indicated in such conditions as tenosynovitis or in any extensive infection and, should a skilled anesthetist be available, nitrous oxide is probably to be preferred. In my own practice, I did not have such expert assistance and these cases were treated by nerve block at the wrist or elbow. No bad effects, attributable to the anesthesia, were noted in any case.

Contrary to common opinion, children are usually even more favorable subjects for local anesthesia than are adults.

ANTISEPTICS

Three questions may be asked regarding the value of an antiseptic in the treatment of injuries:

1. Is it an efficient germicide?
2. Does it cause pain?
3. Does it cause "weeping," or does it promote dryness of the area?

In my experience, 20% mercurochrome, in water, is the most nearly ideal. By a series of comparative tests, carried out in the Pelton Clinic, Elgin, Ill., it was decided that 10% mercurochorme gave approximately the same results as iodine and that increased strengths, up to 20%, gave much greater protection. This solution was in use there, as a routine, and it was while working with them in 1927 that I adopted it. Mercurochrome, even in this concentration, causes practically no pain and it usually exerts a prompt and very definite anesthetic action. For keeping

the area dry, I have used nothing that compares with it.

DRESSING

The average accidental wound is dressed too frequently. It has been my practice to inspect the wound in approximately forty-eight hours and, if it shows no evidence of infection, not again until removal of the sutures. Infected wounds will, of course, require different management but infection should be so rare as to be exceptional.

One cannot be too gentle. It is seldom pardonable to produce pain during the change of a dressing and, except in those cases associated with loss of skin surface, where hemorrhage has been controlled by pressure, one should never cause bleeding. The loss of even one drop of blood means that healing tissue has been disturbed and progress retarded. This does not, of course, include the deliberate removal of exuberent granulations or the occasional necessary secondary debridement.

INCISED AND LACERATED WOUNDS

The three fundamentals for the rapid healing of incised and lacerated wounds are perfect hemostasis, accurate suture and rest. The first two may be considered together, since the easiest and most efficient method of hemostasis is by suture.

It is frequently claimed that one guards against infection by leaving the wound open, "for draining." To my mind, this is a fallacious and dangerous doctrine. The greatest menace to a wound is the blood clot between the raw surfaces and, to whatever extent we can reduce its size, we protect the patient from infection. Unless associated with loss of surface, no external wound can be considered as properly cared for so long as there is any hemorrhage.

If this dictum be accepted and practiced, one may almost entirely dispense with drainage in recent wounds. I doubt if I drained more than three cases, during my last year of industrial practice, and increasing experience tended to restrict rather than to extend the use of drains.

The combination of 20% mercurochrome, careful suture and the restriction of drainage, gave me healing without clinical infection in more than 99% of cases.

I should like to make a plea for the suture of accidental wounds of much smaller size than is the custom. In my opinion, if the skin edges gape and fail to remain in spontaneous approximation, that wound will heal more rapidly, more neatly, and with less risk of infection, if accurately sutured.

Four sutures to the inch are probably the minimum and six are generally to be preferred. More may be indicated in irregular wounds or on wrinkled surfaces.

One frequently sees a wet dressing applied to a freshly sutured wound. One might as well spare the trouble of suturing. The first essential of wound repair is the coagulation of the thin film of exudate between the opposed surfaces. This cannot coagulate in the presence of a wet dressing and its prevention, in infected wounds, is the sole value of such treatment.

I believe that the too early removal of sutures is responsible for the dissatisfaction of many men with the results of the suture of accidental wounds. Even after a wound has completely epithelialized, the underlying tissues may be unable to withstand the strain of movement and the wound becomes reopened. Such non-swelling material as horsehair may be left in the skin almost indefinitely. In the thick skin of the palm of the laboring man, I have often allowed sutures to remain for as long as three weeks. In the meantime, the man may return to work without fear of reopening his wound and without pain. He should, however, keep a small dressing over the area and must keep the hand dry. It is usually advisable to wear a glove.

I have found it advantageous to advise that the suture line be smeared lightly, after each washing, with some simple greasy preparation. This precaution, persisted in for a week or ten days after complete surface healing, will prevent cracking of the new and tender epithelium.

You are all familiar with the oblique wound, almost parallel with the skin surface; the type that reflects a flap. Under routine circumferential suture, one usually gets a hematoma under the flap, with probable infection and a congested, elevated area that may persist for months. This is easily prevented by one or two stitches through the centre of the flap, into the underlying tissue. This simple method offers all the advantages of a drain with none of its disadvantages.

Catgut ligatures, buried in the superficial fascia, are a common source of dis-

appointment, either in the form of a sinus or because of a red and swollen suture line. In the hand and wrist, it is practically never necessary to bury a ligature. For the control of superficial venous bleeding, as is so common from the dorsal venous arch, I recommend the following procedure.

Close the wound by interrupted mattress sutures, so placed that each cut vessel is enclosed by one suture. This everts the skin edge and is not a satisfactory closure, in itself. Now close in the usual manner with interrupted sutures. When the wound is dressed, at the end of forty-eight hours, remove the mattress sutures only. The everted skin edges fall back into place, hemorrhage does not recur and the interrupted sutures retain approximation until healing is complete.

For deeper bleeders, the "figure of 8" suture is highly satisfactory.

The use of electrocoagulation now offers a still more desirable method for the elimination of ligatures and I feel that it will soon take a prominent place in hand surgery. Technique, such as now used in operations on the brain, could be readily applied to the hand with, I am sure, greatly improved results.

CRUSHING WOUNDS

The most common crushing wound is one involving the nail. These may be of three grades of severity:

1. The subungual hematoma.
2. Lacerations along the edge of the nail.
3. The partially or completely detached nail.

In the first two, the main aim of treatment is to prevent infection beneath the nail. This can usually be accomplished by painting with mercurochrome, along the nail edges and under its tip. I shall describe a simple method of introducing a solution beneath the nail.

Compress the soft tissues of the finger tip tightly against the nail. Paint around and under the edges of the nail, making sure that there is no break in the film of solution. Suddenly press the soft tissues away from the nail and the solution will pass back as far as the nail is separated. I have repeatedly, by this method, forced mercurochrome along the track of a sliver, as far back as the lunula.

The subungual hematoma may require drainage, both for the patient's comfort and to avoid the persistent pigmentation. The usual method is to drill through the nail but this drill hole will be a nuisance until it has been outgrown. I greatly prefer a small incision, as made with a No. 11 Bard-Parker blade, from the tip of the finger and close along the palmar surface of the nail. This gives satisfactory decompression, requires only a few seconds and closes as soon as it ceases to be required. One should take ample precautions to guard against the introduction of infection.

The partially detached nail should be replaced as accurately as possible, after painting the nail bed and both surfaces of the nail with mercurochrome. It protects the finger, saves the pain of removal and gives a more normal shape to the new nail and, incidentally, to the finger. A safe rule is to not remove the nail until it can be done without pain or bleeding, seldom earlier than six weeks.

One rare complication of crushing injuries to the fingers merits special mention. The extensor tendons are very close to the proximal and middle phalanges and may become adherent. I have seen this in two cases, one of them under my care from the beginning, and am satisfied that early movement would have prevented this serious disability.

PUNCTURED WOUNDS

When compared with the total number of punctured wounds, most of which receive no treatment whatever, the number becoming clinically infected is small indeed. For this reason, I believe in conservative treatment — sterilization of the surface, a sterile dressing, local rest and instructions to the patient to report at once, should the area become swollen or increasingly painful. Very rarely does any complication follow such management.

Unless the evidence of a foreign body be very definite, a punctured wound should not be explored, or even enlarged. The part should be examined under the fluoroscope and thoroughly palpated. If no evidence of foreign material can be demonstrated, one is justified in adopting a waiting attitude. Earlier in my experience, I have often explored on the strength of the patient's story of a retained splinter of wood. Only once have I found anything not showing on careful examination,

a ¾ inch splinter of wood lying longitudinally in the tendon sheath.

Nor need one incise on the first evidence of a local inflammatory process. Passive hyperemia, produced in a simple way to be described later, will frequently abort the infection. The two areas which one may be less reluctant to incise are the distal closed space and the palmar surface of the proximal interphalangeal joint.

I have never seen a serious complication follow this method of watchful waiting.

THE DISTAL CLOSED SPACE

The distal closed space, frequently called the anterior closed space, is the palmar surface of the terminal phalanx. Because of its special anatomical features, infections of this space are frequently complicated by destruction of the bone, the common "bone felon."

Although incision, in order to save the bone, must, as a rule, be made before pus has collected, this space need not be opened at the first evidence of infection. One should remember that the pressure in the firmly walled off space is the cause of bone necrosis, actual bone infection following later. For this reason, punctured and not incised wounds are the more likely to give trouble.

The red, painful finger tip is not sufficient indication for incision, but the tense, hard, throbbing phalanx requires immediate operation. One should not depend much on color changes as the skin may be hard and thick and is frequently stained with iodine.

At the first evidence of infection, or, better still, as a routine, passive hyperemia should be instituted. This can readily be done by slipping an ordinary rubber band around the proximal end of the finger, with just sufficient tension to obstruct the superficial veins but not enough to occlude the arteries. I have had my patient do this for ten minutes every hour, until improvement followed or until increasing tension indicated drainage. Under this management, many escape incision.

For the usually described treatment, splitting the finger tip and putting in through and through drainage. I have only the most emphatic condemnation. It is needlessly mutilating, heals slowly, leaves a deformed finger tip and is no more efficient than simpler measures. I recommend a lateral incision, parallel with edge of the nail and 1-8 inch from it, beginning opposite the proximal end of the nail. This may be carried slightly across the end of the finger, never to the middle line, but may usually be stopped at the distal end of the nail wall. Point the blade of the knife at such an angle that it will reach, or even slightly cross the midline from ⅛ to ¼ inch from the palmar surface, depending on the size and shape of the finger. This incision cuts the radiating fibres, avoids the tendon sheath, periosteum and, usually, the digital vessels. I have never seen a case fail to respond to this treatment and have never made a bilateral incision.

HANGNAIL

May I call your attention to a common, painful and embrassing condition, the ordinary hangnail. This seems to be considered beneath the notice of the surgeon, but it certainly may engage the serious consideration of the patient.

They may be readily prevented, and the uninfected ones cured, by massaging the nail wall and the eponychium with some simple ointment. I have usually recommended Burroughs-Wellcome Hazeline Cream. Some patients may require an application several times daily, but once, on retiring, is usually sufficient. If already bleeding, it is potentially or actually infected and, under such circumstances, mercurochrome and passive hyperemia may be indicated. Neglected cases frequently lead to paronychia.

TENOSYNOVITIS

Although having no original contribution on this subject, I feel that a review of the diagnostic principles may be useful.

The tendon sheath is a completely enclosed, elongated tube. If one thinks of the ordinary sausage-shaped rubber balloon, most of its signs may be easily visualized.

Infection of a synovial surface causes hypersecretion ond the sheath becomes filled with fluid under pressure. This point is the basis of the characteristic physical signs.

1. The swelling is uniform and confined to the limits of the sheath, not involving the dorsum or the distal closed space.

2. Pressure over the sheath causes an increased pressure within it, while pressure on the dorsum, sides or distal phal-

anx is not transmitted to the sheath or its contents. Therefore, pressure over the sheath is intensively painful, in other areas not more than mildly uncomfortable.

3. The maximum capacity for any given surface area is found in the sphere. A collection of fluid in the sheath tends to increase its diameter and decrease its length. This causes flexion of the finger.

4. Extension of the digit increases the length of the sheath at the expense of its diameter and capacity, thereby increasing the pressure within it, and causes pain.

This clinical picture of uniform swelling on the palmar surface, tenderness limited to the sheath, flexion and pain on passive extension, is sufficient for the diagnosis of tenosynovitis, and requires only minor modification for the different sheaths.

Such a condition demands immediate and generous incision, unless one is satisfied that the tenosynovitis is secondary to some neighboring disturbance and is not infectious. I know of only one condition likely to lead to confusion. That condition is arthritis of the metacarpophalangeal or interphalangeal joints. The differential diagnosis rests on the demonstration of a red, tender, possibly swollen area on the dorsum, corresponding in outline to the affected joint or joints, with pain in the joint on passive flexion. Joint pain produced by passive extension will be masked by the pain in the sheath.

The most outstanding case in my experience was a gonorrheal arthritis of the metacarpophalangeal joint in a young girl. The correct diagnosis was possible, on the signs mentioned above, and confirmed by a positive vaginal smear.

CHRONIC SUPERFICIAL INFECTIONS

Probably everyone has seen cases of chronic superficial staphylococcic infection. These are usually seen as a complication of injury to the dorsum of the fingers or hand and may persist long after the original wound has healed by primary union. They are very resistant to treatment and spread intradermally, greatly resembling ordinary impetigo.

I should like to recommend silver nitrate, 1%, more conveniently as an ointment, as an apparent specific in these cases. This may stain the skin so should be used with caution, if at all, on the face.

THE LUMBRICAL CANALS

Many men hesitate to open the lumbrical canals, apparently because they are not sufficiently familiar with the anatomy of the hand. For the general surgeon the industrial surgeon and the general practitioner, this is the most important area in the body. I recommend the anatomy of the hand and forearm as your next postgraduate study. In the meantime, the following point may be found useful. If you hyperextend your own fingers at the metacarpophalangeal joints, you will note an elongated elevation opposite each interdigital cleft. These overlie the lumbrical canals. The lumbrical muscle lies along the medial side with the digital vessels and nerve lateral and partially superficial to it.

SUMMARY

I have presented certain practical points in hand surgery. These have been of great service to me and of value to my patients. They are offered in the belief and hope that you, also, may find them useful.

WHY ADVERTISING PAYS

The Oklahoma State Medical Journal is read by physicians in active practice. They are the doctors who buy products and prescribe them for their patients.

The Journal of the State Medical Association is jointly owned by its readers. They have a personal interest in patronizing their own advertisers.

The Journal intensively covers its own field. It is believed to have more paid circulation there than any five Journals of general circulation.

It confines its circulation to a limited field. Its editorials and news pertain to that territory. It is full of reader interest.

All advertising is carefully edited. Questionable advertising is excluded. Readers know the advertising pages are trustworthy. Ethical advertisers are solicited.

OCCURRENCE OF BORDET-GENGOU BACILLUS

The results of the examinations (of 3,897 specimens, 2,144 of which came from pertussis patients) of Bjorn Kristensen, Copenhagen, Denmark (Journal A. M. A., July 15, 1933), are comparable with the hypothesis that the Bordet-Gengou bacillus is the etiologic agent of whooping cough. The cough-plate method has been used for sixteen years at the State Serum Institute in Copenhagen and has proved to be of practical value. It is the best method for diagnosing the disease early. An isolation period of four weeks after the onset of the typical paroxysm has in practice been sufficient for school children. Healthy carriers have not been found outside of families in which whooping cough exists. Abortive and quite atypical cases of whooping cough are frequently found, and the author believes that they play an important part in the spread of the disease.

THE CRIPPLED HAND

CURT VON WEDEL, M.D.
OKLAHOMA CITY

Deformities of the hand constitute one of the very serious catastrophies that befall mankind. Next to permanent brain injury and blindness, serious loss of the use of the hands does more to incapacitate one in our social lives, than probably any other single factor. We are going to briefly sketch in this talk, some of the more common conditions, which can be easily remedied. For purposes of presentation, we will divide them into several classes.

CONGENITAL DEFORMITIES

(a) *The Supernumerary Finger,* that is, the extra little finger and the extra thumb. We operate these cases as soon after the tenth day as possible so that the baby may develop that finger which is left. It is very difficult to state which of the fingers to remove, or which thumb, but it is usually best to remove the external finger or thumb, because they are usually not as well developed. There are usually present two facets on the metacarpal bone which should be left alone. The extra tendon, which is always present, should be sutured into the remaining tendon so we may have complete development of the muscle, rather than atrophy of half of the muscle. These operations require exceeding care in detail, but if well done, bring very brilliant results.

(b) *The Web Fingers*: (Syndactylisis). This is one of the oldest operations in surgery. The old procedure was to split the skin from one finger on the palmar surface and the other finger on the dorsal surface and then wind the resulting flap around its finger. This bettered the condition but never cured it. Likewise, in most of these cases the terminal phalanx is as one, being firmly united with its mate at its side. Normally, as the base of the web is square, there was never skin enough to make up for this space, resulting in a very incomplete condition. By far the most efficient way to treat this condtion is to cut the web right down through the middle just as far as one can until the ligament is reached; this leaves a good thick skin on the palmar surface as well as the dorsal surface and leaves the denuded area between the fingers. We then place a full thickness graft on the denudded area. Later by special operation, the base is squared which will insure a full deep web, allowing for complete abduction.

DUPUYTREN'S CONTRACTURES

The So-Called Dupuytrens Contracture: The cause of this contracture is unknown. We know that it is mostly in older men and in persons who have a tendency to lay down fibrous tissue. It is one of the most disabling conditions one can imagine, because it usually starts in the index or the little finger, and is followed by a gradual and increasing contracture until the fingers are forced down on the palm. There have been various methods devised to cure this condtion, but the original discussion by Dupuytren in which he states all the palmar fascia must be removed and the whole skin must be thoroughly mobilized, still holds true. The best incision is one made along the edge of the palm on a line between the little and third finger, then carried across towards the index finger at the uppermost crease. This whole flap is thrown back and the palmar fascia completely removed. Because frequently many of these cases have been operated previously, or because the skin has become thoroughly hardened, it may be necessary to remove some of the skin. This should be replaced by a very loose fitting full thickness graft. Following this extensive removal, X-ray will help prevent the reformation of fibrous bands from tissue which may not have been completely removed. We have operated some fifteen of these cases, several of which had been previously operated, but not completely. We have obtained unusual results on those cases where we have been very radical, but when we have tried to be conservative in the removal of the fascia, we have always had recurrence.

TRAUMATIC DEFORMITIES OF THE HAND:

INFECTION

Those following deep palmar abscess. There is probably no phase of reconstructive surgery that is so difficult and so baffling as reconstruction of tendons which have been destroyed by infection. This is because not only is the tendon destroyed, but the tendon sheath, the nerves, and all the fatty tissue is gone, and whatever little string of tendon there may be left, is imbedded in thick, hard, fibrous scar. We never attempt surgery on these hands until we are certain beyond all measure of a doubt, that every bit of infection has subsided. Before we do any

operation, we mobilize them under gas and thoroughly massage them; if they then do not break down or flare up, we allow two weeks to pass, when it is usually safe to attempt it. The procedure in these cases aways depends on the amount of destruction and the extent of the involvement. One incision is usually enough, because at best the blood supply is extremely poor. We get beyond the area of destruction and follow every tendon down into the mass on both sides, and then try carefully to separate whatever is left. We make no attempt in these extensive cases to separate the superficial from the deep tendon but are satisfied if we get some reasonable amount of flexion.

When we have separated or built up our tendons, it is best to take some fat from the arm or from the abdomen and surround them. One must be very careful, as this fat has a tendency to break down. The wounds are drained and the hand dressed with sponge pressure, to leave no space for a collection of serum. The hand is left at rest for about one week, and then passive motion and massage are instituted. We are never very enthusiastic about these conditions and frankly tell patients they should be thankful for any little motion they get. If we get sufficient motion to allow the patient to dress himself we have done much, because with restoration of the prehensile factor of the hand, we have given him that one outstanding attribute which differentiates the human hand.

BURNS IN CHILDREN

Another serious trauma resulting in crippled hands, are those which result in contractures following deep burns. Deep burns destroying the palm of the hand in adults are comparatively rare. These are much more common in children. We have had many cases where children have had the palms of one or both hands destroyed, by gripping hot objects, with a resulting destruction of the palmar skin and some of the palmar fascia. This is the most frequent type of burned hand we encounter among children. These cases can be brilliantly restored by a simple yet technically difficult operation.

All the scar tissue is carefully resected, a careful pattern is made and a full thickness graft is cut from the abdomen and carefully sutured in place. The ends of the fingers sewn palm upward to hardware cloth and even pressure instituted. In this manner the palm is restored with a thick pliable skin. We have had some brilliant results with cases of this type in children from six months to eight years of age. To use a pocket flap is a very difficult procedure in children, because of the difficulty in dressing, the difficulty of holding the hand in situ and trouble with infection. They simply will not keep the hand at rest, and then too, whereas the first procedure can be accomplished with ten days hospitalization for out of town patient, and one day hospitalization for in town patients, with not to exceed six dressings, with the result not nearly so satisfactory. When one knows the technical difficulty of the first procedure, and understands it, the end result is practically assured.

BURNS IN ADULTS

In adults the procedure with burns on the palms of the hand is much the same as in children. By using the heavy skin of the back, we can give one practically as tough a palm as before the injury. In removing the skin one must be careful not to take away the skin over the spinous process because the resulting scar is often painful. One should go ½" to 1" to the side.

BURNS ON THE BACK OF THE HAND

We see a great many hands in which the backs have been burned, a lot of skin destroyed, healing having taken place by granulation tissue. This results in the piling up of a lot of fibrous tissue and scar, causing fixation of the hand in extension. These cases can be very successfully treated in a comparatively simple manner, by shaving off the fibrous tissue with a straight razor. The hand is then completely flexed and the area is covered with a thick split graft cut in one piece. The only difficult procedure is cutting the split graft in one piece. This can be accomplished with a large thin knife and suction apparatus. The graft is then covered with xeroform gauze and even sponge pressure applied. In a couple of weeks the dressing is removed, and in less than three weeks a half erythema dose of X-ray is given and this is repeated four or five times. In this connection I will say that I refer these cases to the very best X-ray men available in the community in which the patient lives, and write him most careful instructions never to exceed a half erythema dose and to use great caution. On one case I lost my graft due to the careless X-ray. X-ray prevents the re-

formation of fibrous tissue from the tiny islands which are left, and the consequent recurrence of some of the contractures.

When the burn has been extensive enough to destroy the fatty tissue on the back of the hand and some of the tendon sheath, an entirely different procedure must be used. In these cases we completely resect the scar and all thickened tissue and the thin skin on the upper inner portion of the thigh is used for the graft. An incision is made across the top, and the skin dissected free leaving just a little bit of the fatty layer attached. Holes are punched in the lower end of the flap to accommodate the fingers. A split graft is placed underneath the flap on the denuded thigh and the hand is sewn in situ. By placing in the split graft we cover the denuded area, preventing infection, and save two operations. The hand is allowed to remain in situ for three weeks and the flap is gradually cut away under local. When both hands are involved, this of course takes five to six weeks or more, and is costly and time consuming, but one cannot otherwise get a movable flexible skin on the back of the hand when all of the fine fatty tissue has been destroyed by the burn. This gives the nicest end result of any of the procedures, as it covers the hand with a skin that can be exposed to the weather, can be barked and skinned without it everlastingly breaking down, and neither the cold nor the sun disturbs it.

THE CRIPPLED HAND RESULTING FROM VIOLENCE: CUT TENDONS AND NERVES

These result from such as automobile accidents, glass injuries, etc. We will illustrate several of these cases. The most common are those resulting from being thrown into a windshield and severing the nerves and tendons in the wrist. It has been my lot to have seen a great many of these cases, both early and late. I am leaving this group till last because it is the type of case the average man sees most frequently. These are often the result of auto or bus accidents in which someone falls into a glass, throwing the hand out in extension and the glass cuts the nerves and tendons at the wrist. The hands being held in tension, the cut often goes from radius to ulna involving everything.

Do not attempt to sew this up in your office alone. Get someone, office girl, relative, or nearest doctor to administer an anesthetic, because they cannot be correctly sewn up without complete relaxation.

If you do not know your anatomy, get down your book, put it on the table next to you, open at the page showing the tendons and nerves of the hand, and refer to it as you sew up the hand. I have found in most instances that the difficult thing for the men to differentiate is the nerve from the tendon. There are only two nerves of any consequence; the ulnar and the median. The median nerve is directly under the tendon which sticks out when one fully extends the fingers, and is known as Palmaris Longus. This nerve is usually cut and inasmuch as it is the nerve of sensation for most of the hand, it is very important. The upper end will not contract, but the lower end springs into the palm. The common instinct is to sew the median nerve into the palmar fascia, mistaking it for the tendon. If you are not sure, make a longitudinal incision into the nerve. You will find it pinkish and vascular. The tendon is white, hard, and has little blood supply. The ulnar nerve lies deep next to the flexor carpi ulnaris. This is much more easily found as it does not usually retract into the palm. With a book before you, (if you do not understand the relationship) the nerves can be carefully approximated, end to end, with fine number A Corticelli black silk and an ordinary straight needle. These needles can likewise be used for accurate end to end approximation of tendons. One does not need a lot of heavy stuff, because we flex the wrist when we put up the hand so there is no tension whatsoever. The main thing is to take your time; it takes hours. I wish to illustrate the following hand, which took me some four hours; namely, from one until five o'clock in the morning. This man had every tendon cut in from three to six places. He is now able to close his hands sufficiently to grip a steering wheel, open his hand and button his clothes. One must spend plenty of time, sew accurately and watch details. It requires a little technical knowledge and if you are not sure of your anatomy, just put the book before you, chase the family

out, follow the pictures, and you cannot go wrong. This same precedure should be followed in transverse cuts of the dorsal surfaces of the hands. I am not going to burden you with technical details or what to do when you see the end result of bad sugery, because one must alter the procedure to suit the individual case.

SIMPLE FRACTURES OF THE METACARPAL AND PHALANGEAL BONES

It is too often the practice to simply put these up on a piece of board and let them go, whereas a simple procedure will prevent most disabling deformities. There are two modes of procedure to follow, depending on the type of fracture we have to deal with.

The first is: To put the hand up by transfixing the terminal phalanx and the nail with No. 22 wire and using a banjo splint with elastic traction.

The second is. To put the hand up by curling it around a large bandage, thus maintaining constant traction.

COMPOUND COMMINUTED FRACTURES

We treat these fractures with a good deal of destruction of the soft tissue, such as one gets from explosions or when ground up in auto accidents, by swinging them up. Every household has a simple iron bed. There is always plenty of lumber to be obtained, and you can tie an overhead frame to any bed. Transfix the fingers with baling wire or wire from a piano and swing the hand up so the weight of the arm in flexion will cause traction. It is then easy to irrigate, clean, and to remove from day to day the little sloughing which occurs.

In conclusion, remember one can easily obtain an artificial foot, but never since history began, has anyone been able to make an adequate hand. The hand is the most complicated piece of mechanism in all the world. The flexion, extension, abduction and adduction, the thumb and finger motion, with all the little delicacies which accompany it, cannot possibly be replaced.

It then behooves us to do everything we can to save the functions of the hand, to the greatest possible extent.

INJURIES OF THE NERVES AND TENDONS OF THE HAND*

SUMNER L. KOCH, M.D.
CHICAGO

I.

THE IMMEDIATE TREATMENT OF INJURIES OF THE HAND

The principles of the immediate treatment of injuries of the hand are not different from those of other injuries, but injuries of the hand seem to us particularly important because they are so common and because the function of the hand looms so large in the lives of every one of us.

In the treatment of an injured hand it is of first importance to have a definite and accurate knowledge as to the extent of injury. Too often one finds only after the most opportune moment for treatment has passed that important nerves, tendons or bones have been injured as a result of what was apparently a simple and uncomplicated traumatism. In few parts of the body, moreover, is it possible to determine so accurately by examination of the part, not of the wound, the exact nature and extent of the injury.

We are inclined to think of the hand as a complicated mechanism and to consider an exact diagnosis as difficult of accomplishment. It should not be so. In injuries of the volar surface of the forearm and hand the structures likely to be involved are median and ulnar nerves, and long flexor tendons. The symptoms of median nerve injury are definite and easy to elicit —anesthesia in the area of median nerve distribution, roughly the volar surface of three and one-half fingers, and loss of ability to rotate the thumb so that it faces the fingers. The symptoms of ulnar nerve injury are equally definite—anesthesia in the area of ulnar nerve distribution, the volar and dorsal surfaces of one and one-half fingers, and loss of the ability to abduct the fingers from and adduct them toward the midline of the hand. Because of the close proximity of the ulnar vessels there is invariably associated with ulnar nerve injury the severe hemorrhage that results from injury of ulnar artery or veins or both. There are, of course, other symptoms of median and ulnar nerve in-

*From the Department of Surgery, Northwestern University Medical School. Read before the Oklahoma State Medical Association, Oklahoma City, May 16, 1933.

jury, but those mentioned are unequivocal and diagnostic.

The symptoms of division of the long flexor of the thumb and of the flexor digitorum profundus are equally definite—loss of power of flexion at the interphalangeal joint of the thumb, and at the distal interphalangeal joint of the four fingers. Division of the flexor digitorum sublimis and of the flexors of the wrist is more difficult to recognize by examination of the hand itself, but a glance at the wound is usually sufficient to tell the surgeon that some of these tendons, at least, have been injured.

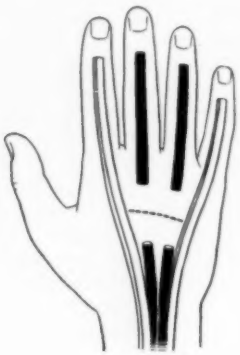


Fig. 1

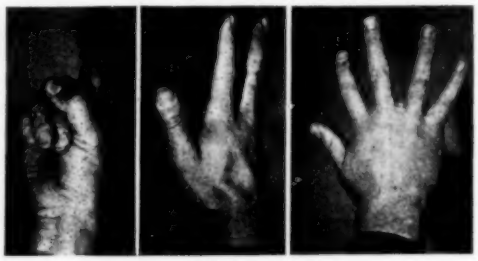


Fig. 1

Fig. 1. Division of extensor tendons of middle and ring fingers by fireman's axe; immediate wound closure elsewhere without tendon suture. Secondary tendon suture seven weeks after injury, with transplantation of fat under sutured tendons; primary union. (a) Findings at operation. Solid black lines indicate divided tendons. (b) Result four years after operation.

With injuries involving the dorsal surface of the hand and forearm the diagnosis is equally simple. Below the middle of the forearm the radial nerve is purely a sensory nerve; its division results in anesthesia of the dorsal surface of three and one-half fingers. Division of long or short extensor of the thumb, the extensors of the wrist, the common extensor of the four fingers, or any one of its constituent tendons is not likely to be overlooked if the surgeon simply tests the patient for ability to extend the thumb, the fingers and the wrist.

The second step in the immediate treatment of a hand injury is to determine exactly what treatment should be carried out when the patient is first seen. In reaching this decision one question is of paramount importance and deserves a consideration that it does not always receive. It is this—is the wound clean, is it contaminated, or is it already infected? To answer these questions is often difficult, but our experience has impressed several facts upon us. First, that so far as the patient is concerned the danger from infection far outweighs the possible harmful effects that may follow an injury of the soft tissues or bone, with the exception of course of a severe and life threatening hemorrhage. Secondly, that if there is a question as to the possibility of converting a contaminated wound into a clean wound, or as to whether infection has already developed it is far better to leave the wound alone, as far as any operative repair of injured tissues is concerned, than to run the risk of disseminating virulent organisms throughout the tissues. Thirdly, that in the cleansing of a contaminated wound or in the preparation of a clean wound for operation nothing is quite so valuable as plain soap and water. I hesitate to dwell on something so simple and commonplace, and yet each of us is responsible to a certain extent for the teaching of medical students and internes, and this phase of surgical teaching is often neglected as scarcely worthy of our time and attention. We live in an "antiseptic age." We are constantly bombarded with arugments and literature extolling this and that antiseptic and we are prone to forget the important lesson, demonstrated so forcibly during the World war, that if wounds are carefully cleansed before sufficient time has elapsed for bacteria to invade the tissues, and if this is done without injuring the living tissue, no antiseptics are necessary. For a long time in our own work and in our ward at the Cook County Hospital we

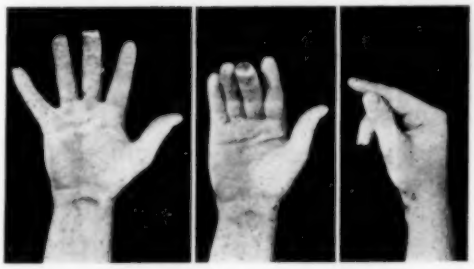


Fig. 2

Fig. 2

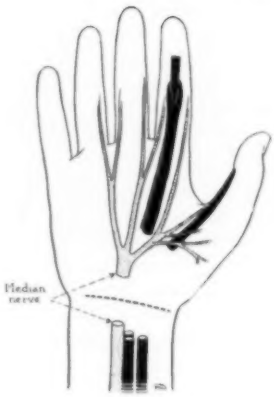


Fig. 2

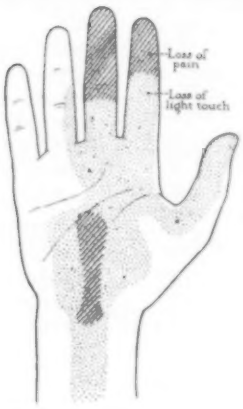


Fig. 2

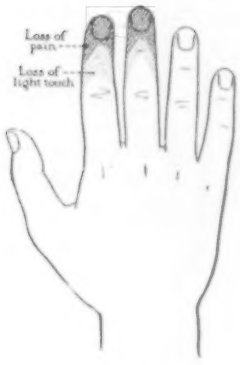


Fig. 2

Fig. 2. Division of median nerve, of flexor pollicis longus and both flexors of index finger; immediate skin suture elsewhere; primary union. Secondary nerve and tendon suture twenty-six days after injury. (a) Before operation. (b) Findings at operation. Solid black lines indicate divided tendons. (c) Result and (d), (e), sensory findings 17½ months after operation. Dotted area indicates loss of response to light touch; oblique lines loss of response to pin prick. In spite of the objective loss of response to light touch the patient states that sensation is practically normal.

have prepared compound injuries for operation by laying sterile gauze over the wound, carefully cleansing a wide area about the wound with soap and water and finally cleansing the wound itself as gently and as thoroughly as possible with soap and water. The results obtained have convinced us that if one cleanses contaminated tissues with the most efficient cleansing agent we know which does not injure delicate living tissue cells—in other words with soap and water, and does it so gently that his manipulations do not injure these delicate cells, healing with a minimum of wound reaction is more certain to result than if he floods the wound with chemical solutions which coagulate and destroy tissue and so help to form excellent culture media and favorable conditions for bacterial growth. Finally, in the repair of injured tendons and nerves no factor is so important in securing a successful result as healing of the operative wound without infection and by primary union, and in order to secure such a result it is wiser in doubtful cases to suture the carefully cleansed wound loosely, or to leave it unsutured and postpone further operative repair until it can be performed as a perfectly clean operation, than to run the risk of having infection develop after an immediate operation and nullify completely the results of operation and, in some cases, make practically impossible any subsequent operative repair.

To be more specific, the criteria we have come to depend upon in deciding the question of immediate operation are these: the cause of the wound, the condition of the hand, the site of injury, the conditions under which the injury was sustained, the first-aid treatment rendered, the time that has elapsed, and the facilities available for repair. If the wound is due to a clean and cutting instrument, if the wounded part was clean, if the wound was

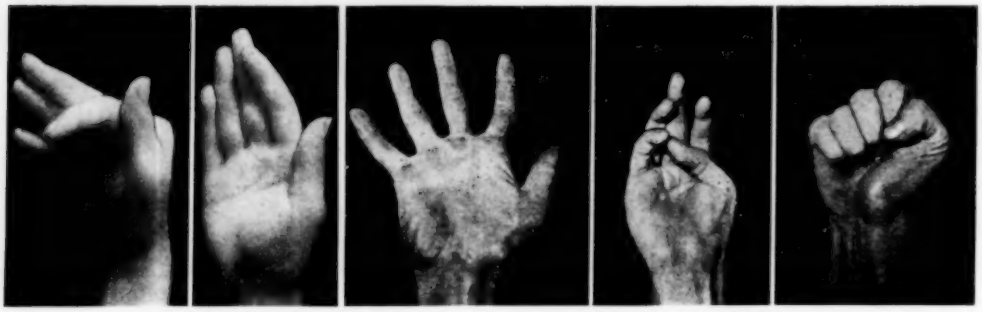


Fig. 3 Fig. 3

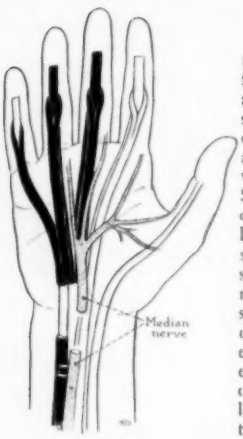


Fig. 3

Fig. 3. Division of median nerve, of both flexor tendons of middle and ring fingers, and of superficial flexor tendon of little finger. Immediate closure of skin wound; primary union. Secondary nerve and tendon suture twelve weeks later; primary union; secondary formation of a small sinus which remained unhealed until a single suture sloughed out ten weeks after operation. (a) Before operation. (b) Findings at operation. Solid black lines indicate divided tendons. (c) Result two years after operation.

sustained indoors and not on the street or open road, if the first-aid dressing was surgically clean, if the patient is seen within three hours after injury, and if hospital facilities are available for operation, we believe one is justified in carrying out an immediate repair. If these conditions are not all fulfilled we believe it is wiser to postpone the repair of nerve and tendon injuries until the wound is soundly healed and until the operation can be performed under ideal conditions.

II.

THE REPAIR OF NERVES AND TENDONS

In the surgical treatment of injured nerves and tendons a number of technical details are of great importance. First of these is care to eliminate the possibility of infection, for we believe no single factor is so important in securing a successful result as healing by primary union. The injured hand is carefully cleansed with warm soapy water the evening before operation. It is then covered with a sterile dressing which is not taken off until the patient reaches the operating room. In the operating room a blood pressure cuff is applied to the arm and the hand and forearm are painted with 5 per cent picric acid in 50 per cent alcohol just before the sterile linen is applied.

The nose as well as the mouth of everyone who enters the operating room is masked for we are convinced by Meleney's studies and by our own clinical observations that wound infection can result from virulent bacteria entering the wound from the uncovered nose of surgeon, nurse or assistant.

When possible we prefer to use a general anesthetic—nitrous oxide, ethylene or ether—in the treatment of a severely injured hand so to avoid injecting fluid into tissues which have already been injured, and so as not to make the blood pressure band a source of discomfort to the patient.

Just before the incision is made the arm is held elevated for a few minutes, and the blood pressure band inflated to 240 mm. so as to secure a bloodless field. One cannot perform accurate and satisfactory nerve and tendon suture unless the field is free from blood, nor can one avoid traumatizing delicate tissues when constant and repeated sponging is necessary.

If possible the incision is made in such a way as to avoid cutting across flexion creases and so as to permit one to lay a flap of skin and subcutaneous tissue across the line of nerve and tendon suture. In other words, in cases of median and ulnar nerve injury one tries to avoid a vertical incision along the middle of the volar surface of the forearm, an incision which is difficult to suture when it is necessary to flex the hand at the wrist to avoid tension and which makes it necessary to suture skin and subcutaneous tis-

sue directly over the line of nerve and tendon suture.

In dissecting free the injured nerves and tendons it is wise to work toward the site of injury from normal tissue above and below the wound, for one soon becomes hopelessly lost if he tries by direct attack to identify important anatomical structures which are bound together in a mass of fibrous tissue. When the injured nerves have been identified and freed the tendons are taken in turn. Every effort is made to perform a sharp, clean cut dissection, to avoid tearing of tissues and traumatism with forceps and blunt instruments. If traction on them is necessary nerves and tendons are held with moist gauze sponges rather than with sharply pointed tissue forceps; when they are freed and identified they are protected with gauze or cotton soaked in warm salt solution until the dissection is completed.

large dressing of sterile gauze and bandaged under moderate pressure; only when the bandage has been applied is the constriction released and the blood allowed to flow back into forearm and hand.

A light aluminum splint is applied to hold the hand and forearm in the desired position. For example with injuries involving the volar surface of the hand and forearm it is absolutely necessary to apply a splint which maintains volar flexion at the wrist, so as to eliminate any tension on sutured nerves and tendons. The splint is gradually straightened and usually dispensed with at the end of three weeks.

Two or three days after operation gentle movement of the fingers is begun, and increased as rapidly as it is possible to do so without endangering the healing wound or causing undue pain. Skillful physical therapy and well directed exer-

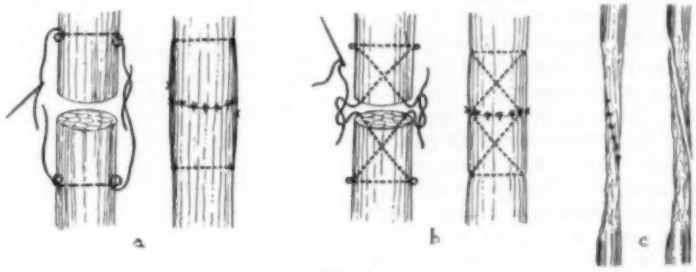


Fig. 4

Fig. 4. Method of approximating the ends of divided tendons. (a) The preferred method. (b) An alternative method. (c) Method of approximating the fragmented ends of scarred tendons when end-to-end union of freshened tendon ends is impossible because of extensive destruction of tissue.

If there is a question as to injury of blood vessels it is wise when dissection of the nerves and tendons is completed to release the constriction and ligate any vessels that may be bleeding. The arm is then elevated again and the constriction reapplied to check the persistent oozing that can be stopped only by constriction or by pressure.

Tendons are sutured first, and if possible end-to-end (Fig. 4). The nerves are then sutured end-to-end with the very finest of silk suture material, that includes only the epineurium. Finally the subcutaneous tissues are united with fine black silk and the skin with fine needles and fine suture material, that do not leave holes in the skin through which bacteria can enter the deeper tissues.

The sutured wound is covered with a

cises, carried out for a number of weeks after operation, are of very great value in bringing about restoration of function.

Note: A somewhat more extended discussion of the subject with a list of important references on the treatment of nerve and tendon injuries can be found in Surgery, Gynecology and Obstetrics, January, 1933, volume LVI, pages 1-39.

DISCUSSION: *Dr. A. L. Blesh,* Oklahoma City.

I feel totally inadequate to discuss these papers. They were on a specialty of surgery that my experience does not so completely cover as that of the authors of the papers. I have been interested, however, in those phases of the subject which have to do with tendons and nerves. Naturally we have all of us had more or less experience with this, and speaking relatively to the time of resuming function, I

think this is governed largely by the length of the nerve and the distance the regeneration has to travel. Regeneration will not begin in any distal segment of a nerve, however, no matter whether it was sutured primarily or secondarily until the degeneration is complete, and then again, too, there is a difference in the recuperative or regenerative powers, to put it that way, in different individuals and therefore the personal factor enters in. While it is true that regeneration does not begin until the generation has completed itself, both of these processes will occur more rapidly in some individuals than they will in others and I don't think any positive prediction can be made as to the length of time it will take. The fitting of the pattern of the nerve is always a matter of considerable disputation. I do not think we can ever exactly coaptate the nerve upon the original pattern but there is a selective action in the regeneration of the nerve itself that comes to aid in that matter. One of the papers stressed the fact, and very properly so, that immediate repair is the most important thing if it can be done. Also it stresses another factor that I am in hearty accord with, to keep out of these injuries strong antiseptics. I have seen more harm arise from iodine and mercurochrome than just simple remedies such as sterile water or something that is not irritating. I am sure that most of the advocates of antiseptics in general agree that strong antiseptics applied in these wounds have done more harm than good. The primary repair can be done. We can risk the infection in suturing the wound because if it does not heal we still have just as good an opportunity in six months as we had in the beginning and we have given the patient the opportunity to heal in the beginning, therefore I believe the remarks about primary repair are pertinent. I think that Dr. Koch's paper is classic. I think all that comes from the clinic is classic, and I wouldn't presume to discuss this paper except to say that I enjoyed it tremendously.

Dr. Koch:

I enjoyed very much Dr. von Wedel's paper and I want to congratulate him on the admirable results he has obtained in the treatment of burns, and of raw surfaces with full thickness grafts. In my judgment his treatment of these conditions is absolutely correct.

I do want to take exception to one thing he said. He gave you some bad advice when he told you to "pitch the family out, get out your 'anatomy' " and then suture the divided nerves and tendons of the patient who had sustained a recent injury of the hand or forearm. The man who has to study his textbook of anatomy as he tries to suture divided nerves and tendons should not attempt such surgery. I say this simply because one sees so many disastrous results with prolonged infection, extensive sloughing of tendons, and frequently complete loss of function after such attempts. Dr. Kanavel often said to us, "I would rather have a man who is doing general surgery take out my appendix than suture a divided flexor tendon."

First of all there are few operations more difficult than the accurate suture of divided nerves and tendons; in the second place no single factor is so important in securing a satisfactory result as healing by primary union and without infection. Unless one has adequate facilities and skillful assistance it is quite impossible to secure such a result.

I enjoyed Dr. Salsbury's paper very much and heartily agree with him. His idea of suturing superficial wounds accurately and of not using drains is sound surgery. I am glad he had one case that got well without the use of mercurochrome.

—o—

ORCHITIS DUE TO MUMPS WITHOUT INVOLVEMENT OF PAROTID GLANDS

Walter D. Bieberbach and Foster Vibber, Worcester, Mass., (Journal A. M. A., April 8, 1933), add one more case to the records of orchitis due to mumps without involvement of the parotid or other salivary glands. They feel certain as to the diagnosis in eliminating the various causes of orchitis in their case. Syphilis was ruled out by the history and by the Wassermann test. Tuberculosis was strongly considered because of the family tendency; this was ruled out by the absence of involvement of the epididymis following recovery from the acute symptoms, by the urologic check-up and by negative examinations of the lungs and roentgenograms. Typhoid and septicemia were eliminated by blood studies. The important question of gonorrhea and its sequels was thoroughly eliminated by clinical and laboratory examinations. Mumps was the final diagnosis for the following reasons; the fact that the patient had never suffered from the disease but had recently been exposed to the disease by his daughter; the sequence of involvement of first one testis and then the other; the duration of the illness with swelling and enlargement of the testis proper, and finally the relative lymphocytosis, which closely conforms to the previously reported cases of mumps in which the testes are involved without apparent changes in the parotid or salivary glands.

ACUTE APPENDICITIS—A PROBLEM

HORACE REED, M.D.
OKLAHOMA CITY

Acute appendicitis is a curable disease. If the proper remedy is applied before the inflammation spreads beyond the appendix, the cures should amount to 100%. There are in round numbers 25,000 deaths in this country from this disease annually. Moreover the death rate seems to be on the increase.

The question of proper treatment was settled about twenty years ago. In the interim the discussions have waged around the question of the proper treatment of cases of ruptured appendix. In this there is no unanimity of opinion. We have only to listen to a group of surgeons express themselves, and there will be about as many opinions as to the proper handling of cases of peritonitis from ruptured appendix as there are surgeons who talk. This was amply verified in the surgical section of the recent meeting of the American Medical Association at New Orleans. These discussions will, and should be kept alive, for the deaths in appendicitis are to be found among those who are not treated properly before rupture takes place. Strive as earnestly as we may, no one would be foolish enough to say that we will eventually attain the ideal order when no one will be permitted to suffer from the rupture of an acutely diseased appendix.

In this paper the treatment of peritonitis from ruptured appendix will not be discussed. The problem which concerns us is; how to reach the patient and to remove the appendix before rupture takes place. We assume that the members of the medical profession are unanimous as regards the surgical removal of the acutely inflamed appendix as being the only safe and proper treatment. Is this a correct assumption? In the published list of deaths of physicians in 1931, appearing in the Journal of the American Medical Association, between forty and fifty were attributed to acute appendicitis! It is understood that these figures do not include all doctors who lost their lives from the same cause.

Several questions arise as to the reason for such a mortality among those who are supposed to be informed. Two of these, at least, are pertinent; first, are physicians sufficiently sold on surgery as the proper treatment of acute appendicitis that they will accept timely operations on themselves? Observation convinces me that with rare exception they are. Second, are doctors sufficiently informed and alert that they are aroused to the possibility of the cause when the initial symptom of abdominal distress is experienced? From personal experience, and from observation, the answer to the second question is too often, "no." Even the author of a book on appendicitis stated that, while on his way from his home to New York, where he was going to make final arrangements for the publication of his work, he had an attack of acute indigestion. He left the train enroute, called a surgeon friend who diagnosed acute appendicitis, took him to the hospital and proceeded to remove a gangrenous appendix. The author further stated that he afterwards recalled that he had previously had similar but milder attacks of indigestion. The inference was that he had not suspected appendicitis as the cause of these attacks.

It is not satisfying to say that the doctor who diagnoses his own illness and prescribes for himself, uses very poor judgment. What does the average doctor offer in explanation of the high mortality in acute appendicitis? He blames it all on the patient for doing this or not doing that. May we ask—how is the patient to know what his trouble is when he first has bellyache and perhaps feels nauseated? Has he been instructed as to the possibilities of these signs? The signs and symptoms of acute appendicitis are so classical and nearly constant, that we are prone to assume that all should understand them. So are the signs and symptoms of cancer of the stomach constant as described in the average text book, but what does it avail us when we are able to demonstrate them in any given case? We all know that when all the clincal and laboratory signs of stomach cancer are present, our chief efforts need only to be directed toward making the patient as comfortable as possible, and winning the good will of relatives to the end that an autopsy may be obtained in which to prove the brilliant accuracy of our conclusions.

The comparison of cancer of the stomach and acute appendicitis may appear to be "far fetched" to some. Let us see. Read in any text book, if you please, a description of the symptomatology, signs, and laboratory findings of cancer of the

stomach, and you will have a picture of a condition which is no longer limited to the stomach. Acute appendicitis, we are told, first manifests itself as pain in the abdomen. This is the first, and is a constant, symptom. What is the condition of the appendix when pain in the belly is the only sign? The next symptom is nausea, and is present in a majority of cases. What is the condition of the appendix when these two symptoms, only, are present? Is not the inflammatory process under way? The third symptom of the classical picture is fever or other signs of toxemia. With these three signs present are we prepared to establish a working diagnosis? No, we must look for the fourth sign of localized tenderness, and perhaps rigidity, before the classical picture is complete. This last sign always means that there is at least an irritation of structures outside the appendix, usually the parietal peritoneum. If one will expose the appendix under a local anesthesia of the abdominal wall, he will find that the appendix itself may be treated with impunity, and even removed, without the patient experiencing any pain. But if traction is made on the meso-appendix, there will be pain in the epigastrium and perhaps nausea. The same symptoms will be present if the meso-appendix is not anesthetized before ligation.

The final symptom in the chain of symptoms means that the inflammation is threatening to break the bounds of the appendix if indeed it has not already done so. Nearly any surgeon of considerable experience can recall cases in which the fourth sign or symptom was not present —no localization, and yet on operation the appendix was found to be already ruptured. The explanation is that the appendix was so located that the product of inflammation had not reached the parietal peritoneum. Even necrosis may go on to liquefaction while we wait for localization, and we are stunned with the signs of generalized peritonitis instead. Fortunately such cases are relatively rare.

The point which we desire to emphasize is that with the first signs of bellyache there is already an inflammation in the appendix, and when anyone whose appendix has not been removed has bellyache, he should suspect that he has a diseased appendix until proof to the contrary is established. If the bellyache is accompanied or followed by nausea, and the signs of toxemia follow closely in their wake, preparation for surgical treatment should be gotten under way, and by the time these preparations are completed the localizing symptoms will usually be found well established. If localization does not take place while the signs of toxemia increase, operation should not be delayed.

These statements may seem radical and not in keeping with safe procedure, but unless physicians become more alert and anticipate the tragic possibilities of every case of acute appendicitis, how are we to materially reduce the mortality of this dreadful disease? We, who acclaim ourselves the guardians of the health and lives of the people, need to be re-baptized in the faith—to use the language of the camp-meeting exhorter. Some of us even need to be rejuvenated in the matter of our responsibility to the public. Having renewed our interest in the question of acute appendicitis we should go to those who look to us for council and advice, and instruct them concerning those signs and symptoms which often develop with frightful rapidity, which, if not heeded, may lead with tragic swiftness to an untimely and unnecessary death. For several years I have followed a method which to some may not seem to be in good taste. Before discharging a patient who has had appendicitis, he has been asked to go over his symptoms in order of their development. He has been impressed with the fact that he had the usual classical signs—the signs as they nearly always develop—and he is told that he should instruct his people and neighbors in these signs and symptoms to the end that the family physician may be called early following the onset of these symptoms. If the family physician does not give this instruction, who then is to do it?

Public health departments rightfully confine their efforts to the control and eradication of contagious diseases, and those things which affect the welfare and health of the community as a whole. Obviously appendicitis, like cancer, is, and always will be, a matter for individual and not mass consideration. Organization for the control of these must, therefore, be outside the function of the state department as long as we maintain our present conception of the proper function of the departments of public health. We have the society for the control of cancer—a disease which so far as our present knowledge goes, will continue to carry a high mortality. If every person of every age

should have at least a yearly examination, there is no doubt but that the mortality from cancer would be reduced, but we all know that cancer develops in certain regions in which the symptoms remain silent until after the malady is well advanced, hence, is incurable. On the other hand, let us assume that every person has been instructed in the early signs of acute appendicitis, and in case of an attack would conform to the proper method of treatment; what, let us ask, would be the result? The answer is "practically no mortality." For every four deaths from cancer there is at least one from acute appendicitis, and for more than fifteen years no improvement has been made, and nothing particular has been done to try to bring about an improvement in these results. True, at least one large insurance company, and certain commercial houses, have passed out constructive suggestions in their paid advertisements. We of the profession should feel ashamed that we have slept on our rights in leaving this instruction in the hands of those whose interests are commercial rather than human.

This tirade would not be complete if we did not pay our respects to certain surgeons who, by their method of treatment, render operations for acute appendicitis unpopular. The craze to explore the abdomen is still rampant in some quarters, hence the outer rectus and mid-line incisions are employed. These incisions call for an unnecessarily prolonged convalescence, and provide an unholy temptation to do meddlesome tricks. For example: in August a surgeon reports that he operated on a young women for ruptured, gangrenous appendix. At the same time he removed an ovary and tube. Two months later she is still confined to her room from what the neighbors understood was an operation for acute appendicitis. Would one of those neighbors graciously and promptly accept surgical treatment in case of an attack?

Properly treated before rupture a patient having acute appendicitis need not be confined to the bed more than a very few days. To this statement there are rare exceptions. By treatment is meant an incision of sufficient length at the place that permits easy and safe removal of the appendix with least trauma to other structures. The appendix has its origin near the end of the cecum. The cecum and ascending colon are usually the most lateral structures in the right side of the peritoneal cavity. An incision outside the right linea semilunares, except in anomalous conditions, will expose the cecum or ascending colon. Properly made such an approach will not destroy muscle support nor sever a spinal nerve. It can be made high or low to correspond to the level of the appendix. There being two muscles, the fibers of each directed practically at right angles to the other, the integrity of the abdominal wall is not disturbed.

In operating for acute appendicitis the surgeon cannot always anticipate whether he will need to make use of a drain. To have to place a drain in the rectus is to increase the probability of at least two dangerous post-operative complications. These are: post-operative hemorrhage from an eroded vessel, and, phlebitis. In the days when operation was rarely done except for abscess, secondary hemorrhages were common, and many of them were fatal. In those days the so-called McBurney incision was usually placed half way between the spine of the ilium and umbilicus. Such an incision was in the rectus muscle, and was not the McBurney muscle splitting incision. Only just recently I was asked to see, and subsequently operated on, a patient who, a few months previously had had an appendiceal abscess drained. When I first saw the patient's abdomen, only the facts as stated above were known to me. Noting that the scar was over the rectus I remarked to the internes that such an incision for drainage of an abscess was bad, but in this instance probably could not be placed outside of the linea similunares. The completed history revealed that this patient suffered from post-operative phlebitis, and had become a drug addict as a result of prolonged illness and suffering. A mid-line incision revealed the remains of the appendix located in a mass of adhesions near the mid-line of the abdomen.

The operation for the removal of the appendix is usually very easy. Just occasionally the operation will tax the skill and resources of the most capable surgeon. But since most often it is a simple, easy operation when performed with a small McBurney incision, and entails a morbidity of such short duration, why should surggeons add to the patient's trouble by any other procedure? If all surgeons would consider these things, the operation for appendicitis would not carry with it this

fear and dread that it now does with a large number of people.

Summarizing let it be said: 1. In this country there are about twenty-five thousand lives lost annually from acute appendicitis, and for fifteen or twenty years no progress has been made, and apparently no worthwhile efforts have been put forth to improve this record.

2. Diagnosed and properly treated before complications set in, the mortality should be practically nil.

3. It is evident that the medical profession is not alert, nor deeply concerned as to the real cause of this unjustifiable loss of life, but lulls itself into peaceful acquiescence by laying the blame for the unhappy outcome on the patient who fails to do the proper thing before complications set in.

4. The symptom syndrome of acute appendicitis is the progressive manifestation of an inflammatory process from its beginning and all the way through a course which often ends in perforation or necrosis before the syndrome is complete. Bellyache, usually accompanied by nausea, and with any of the signs of toxemia, should be warning sufficient to justify action in making ready for the proper treatment of an acutely inflamed appendix.

5. Education of the public in these early signs, and in the dangers of neglected acute appendicitis, offers the only hope in improving the mortality rate. It is the duty of the doctor to instruct all those who look to him for council and advice, but unless the doctor himself is re-informed and re-awakened, he is not in a position to properly perform this task.

6. Exploratory operations in acute appendicitis are unjustifiable except the exploration is made in search of a structure, the relative position of which cannot be previously determined. Such explorations too often result in increased morbidity, and this becomes a factor which often causes the patient to hesitate to accept timely operation. In a large majority of cases the operation for the removal of the appendix is very simple and easily performed, and results in a relatively short period of morbidity, if the McBurney incision is utilized.

DISCUSSION: *Dr. G. N. Bilby,* Oklahoma City.

Gentlemen, as important as this paper is, every general practitioner in the state should have been present. It is more important to the general practitioner than to the surgeon because there is not a single surgeon who has performed half a dozen operations for appendicitis but knows the folly of waiting and procrastination. The quicker you can operate the better. I would rather operate before they become tender and localize or just about the time that begins to come on; you have a better chance than even waiting one hour or two hours. Too many of the doctors are not giving this enough consideration. Either they are not diagnosing it or else they hesitate about turning their patients over to the surgeon. I believe there are very few doctors today but what are qualified to make a diagnosis of appendicitis and make it early. It is true we are still finding a few that diagnose indigestion and give castor oil or C.C. pills to the detriment of their patients but that is very rare. Too many of the general practitioners hold that patient hoping he will get over this one attack and not have to be turned over to the surgeon. I don't know why they are doing this; if they lose the patient they will lose the family and no surgeon is going to steal a family from the general practitioner that sends the patient to him for operation. The death rate is larger with the surgeon than with the general practitioner who does his own surgery. There is no question but the man doing surgery has better technique and more skill, but the very fact that the general practitioner who does his own operating is operating his own patients keeps the death rate down. He sees them first and immediately takes them to the operating room and doesn't wait and his mortality is being held down. He may not be as skilled in his technique but he gets them early. The patient sometimes has been given salts and C. C. pills before being sent into the surgeon and in these the death rate is always heavy.

The pain does not always settle down in the right side. It may come in the left side. It often comes in the left side in one of those long appendices that lie across and at operation you find you have been misled because of the pain and tenderness in the left side. There is another factor that enters into our death rate, more so than many of you fellows think, and that is the osteopaths and chiropractors' mistreatment. Some of your surgeons got the blame for one in Oklahoma City, one of the brightest little boys that comes around the Capitol. He used to come through the

offices selling magazines, as bright and spry as could be. He was taken with acute appendicitis and his mother called a chiropractor who treated him for three or four days and when it was too late some of you surgeons did the operating and made out the death certificate for that boy, when if it had been done the first day he would be back with us in the Capitol. That death was due to the mistreatment of a chiropractor, and we have got to teach the people to stay away from these fellows with acute appendicitis. It is true that the health department is supposed to look after sanitation and also preventive medicine, but anything that will save human life comes in our sphere of work as long as we do not treat cases. We have a right and as long as I am in charge of the health department; it is a teaching institution. It teaches the people the importance of sanitation, the importance of having their children immunized, and also the importance of early operation in appendicitis, and as long as I am in charge of the health department that information is going out to the people through bulletins, magazines, and in every way possible.

Furthermore, as to symptoms, if they have that bellyache, that nausea and vomiting, tell them to go to a surgeon at once. Don't wait to see if it is going to settle down and become tender. Tell them to go at once. Two years ago I was making these farm women camps and talking aboute acute appendicitis. At one camp two counties of women where assembled. My first talk was on immunization and sanitation and then we adjourned for an hour or so. In my talk I had spoken of appendicitis and the main symptoms, and during adjournment one of the women came to me and told me she had that day attended the funeral of one of the most splendid farmers in the community. He became sick one morning and the doctor was called and said he had appendicitis. He came back in forty-eight hours; more than forty-eight hours after this man became sick he was taken to the hospital for operation and it was too late. When the women assembled again I went back over appendicitis and the importance of early operation. I am intending to do that again in the camps this summer and every other time I have a chance so whenever they have a bellyache they will start for the hospital. In fact, I know places where they do that now. They don't wait. As soon as they have a bellyache and vomiting they start for the hospital.

Dr. L. C. Vance, Ponca City.

Dr. Reed and Dr. Long and some of the other fellows here, when I was in the hospital they taught me a lot about acute appendicitis and I have seen a lot of it since. I see it every day. Last year in the meeting of the American College of Surgeons, Dr. Watson of Philadelphia, in a symposium on acute appendicitis, showed that we had more deaths from acute appendicitis than any other nation in the world. Why is it? My idea is this, that we American people go to the drug stores and the druggists prescribe. Dr. Reed almost touched on that. The druggist prescribes for the patient, gives him a purgative or gives him this and that, and when the doctor or chiropractor or whoever sees him first gets there he has a ruptured appendix. I want to congratulate Dr. Reed, which he doesn't need, on his paper. I want to say that in the education for the earliest symptoms of appendicitis, let us educate about the pain in the epigastrium. After it gets down in the right rectus anybody can diagnose it then, a nurse or the neighbor or anyone else. Often in a gangreous or ruptured appendix the blood count may not mean anything. If we would get down to that and get away from the drug store we could get away from our mortality and we wouldn't have the highest death rate of any civilized nation in the world.

Dr LeRoy Long, Oklahoma City.

Dr. Reed presents a typical picture of acute appendicitis in the paper you have heard. You know, and the people ought to know, that in a certain period of life, that is, before fifty years of age, pain in the abdomen most of the time means appendicitis. We must not forget other pathological conditions, of course. These problems are problems for the physician or surgeon to solve, but the point is that in the majority of cases in which there is acute pain in the abdomen before forty-five or fifty years of age, it means inflammation of the appendix because that is the cause of it most often. In the early development of appendicitis, as has already been indicated, the pain is over the abdomen and most often the typical place is about the epigastrium and we can understand that on account of the distribution of the nerve system in the abdomen. Irritation of the appendix before there is peritoneal irritation causes transmission

of the pain. Some years ago I read a very interesting book by Holmes, it must be twenty-five years or so, and in this book he had a little diagram. Up here was a large area representing the solar plexus and down there was an area over the appendix and that connects with the division of the smilunar ganglion. In the beginning of the average typical case the pain is first here about the solar plexus. It may continue down in this way so that it is over the abdomen. Later when there is peritoneal irritation the pain is down over the right side. One other thing we must consider is the obscure case and once in a while we see these cases that require a great deal of study to come to an intelligent decision. We must remember that there are two types anatomically or pathologically of appendicitis; one is when the wall is inflamed and it began as an inflammatory process in the wall. The other type is when there is thrombosis of the vessels due to erosion by a fecalith usually, some foreign body of some character, and after the acute pain as a result of the thrombus is over then you may not have any rigidity down over the right side. You may not have it until the appendix is broken down in early peritonitis.

Right here in this Hotel Skirvin I saw a young man who was a traveling man. I was asked by one of his friends to see him and I came down to see him that night. When I came down to see him he was lying in bed. He said he had some pain in the abdomen. He had a good pulse, the temperature was normal, and he had no rigidity over the abdomen at all. He had no physical signs that I could make out. I looked at him and couldn't figure the thing out very well, and I said, "I suppose I had better come by and see you in the morning." His friend, a very taciturn fellow was sitting there and he hadn't said a word until then, but he said, "that fellow is not telling you the truth. He has had a hell of a lot of pain." Then I became more interested in him. This man had minimized his symptoms, probably intentionally. He was an industrious, aggressive young man and wanted to continue his work. I had him taken over to the hospital and had an internist to come in and see him. We had the laboratory work done and the blood count was 26,000 with a high poly count, I think it was 92 per cent. The blood count helps out somtimes and here it helped out a good deal. It is not every time it helps but sometimes it does, just like counting a pulse or a temperature. This man had a high total white count and a high poly count and had a negative abdomen physically, so I thought he must have something somewhere else. I had studied appendicitis a good deal but I wasn't able to say that there was anything wrong with that abdomen. I went back over the history and he said he had pain and nausea that morning coming down from St. Louis. I finally came to the conclusion that I couldn't find an explanation anywhere else and the operation was done and he had a gangrenous appendix. Now those are very obscure cases sometimes and demand consideration. That brings up one of the most important points and that is, find out as nearly as possible how the trouble about which the patient complains developed and know how the different diseases in the body do develop, then it gives you a good foundation for the investigation of the situation.

Dr. Reed:

I wish to thank you gentlemen for your discussion. I would just like to ask this —why are so many doctors dying from appendicitis? You see it nearly every week; nearly every week you read about it in the Journal as you look in the list of deaths there. Why are they dying from appendicitis? I know a doctor should not be his own doctor, but I am afraid some of them are not getting the proper treatment at the proper time. In answer to Dr. Vance's observation, I would say to him, instruct the people. It is true we have a drug store on nearly every corner and you can get anything you want there, but I have found that a high class druggist will advise these people to see a doctor. Dr Bilby is doing a wonderful work. It amounts to something and he is getting some fine results. The deaths in a great majority have been in those who have an absolutely typical clinical picture. We do have unusual cases. We have the retrocecal type; they are the safer type. A retrocecal appendix will rarely produce generalized peritonitis because it is retrocecal; it is hemmed in and if it ruptures you seldom have a general peritonitis. It is the typical case, the average case in which we lose our lives. The general practitioner if he can do any surgery had better operate just about as promptly as he can or else get his patient in the hands of a surgeon without delay.

THE JOURNAL
OF THE
Oklahoma State Medical Association

Issued Monthly at Muskogee, Oklahoma, under direction of the Council.

VOL. XXVI SEPTEMBER, 1933. No. 9

DR. CLAUDE A. THOMPSON ..... Editor-in-Chief
525-526 Commercial National Building, Muskogee, Oklahoma.
DR. P. P. NESBITT ..... Associate Editor
Medical Arts Building, Tulsa, Okla

Entered at the Post Office at Muskogee, Oklahoma, as second-class mail matter July 28, 1912.

This is the official Journal of the Oklahoma State Medical Association. All communications should be addressed to The Journal of the Oklahoma State Medical Association, 525-526 Commercial National Bank Building, Muskogee, Oklahoma. $4.00 per year; 40c per copy.

The editorial department is not responsible for the opinions expressed in the original articles of contributors.

Reprints of original articles will be supplied at actual cost provided requests for them is attached to manuscripts or made in sufficient time before publication.

Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, 810 Manhattan, Building, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

Advertising rates will be supplied on application.

It is suggested that wherever possible members of the State Association should patronize our advertisers in preference to others as a matter of fair reciprocity.

PRINTED BY HOFFMAN-SPEED PRINTING CO., MUSKOGEE

EDITORIAL

COUNTY MEDICAL SOCIETY WORK

By the time this comes off the press, it is hoped that pleasant Fall weather will be the order of the day in Oklahoma. At any rate from the middle to late September is a good time for all medical societies to meet, and formulate their work for the months, September to May, 1934. In this connection it should not be forgotten that the State Medical Association is empowered to provide speakers, essayists and clinicians for any society, where it is deemed a reasonable number of men may be congregated as an audience. Too, it should not be forgotten that Oklahoma has a vast amount of unusual talent along this line. It should be used; utilized in every respect, for it is only by constant iteration and reiteration are many of the well known rules, facts and laws of medicine made apparent and usable to the man who does not have the advantage to be thrown in contact with such work in his everyday occupation.

Officers of the county medical societies, throughout the state should make it a point to meet with these facts in view.

DOCTOR LEWIS J. MOORMAN—A BIOGRAPHY

Born on a farm one mile west of Leitchfield, Kentucky, February 9, 1875. Son of Lemuel and Martha Elizabeth Moorman. He was the youngest of seven children. The family moved to Leitchfield when Lewis was but a lad.

He attended grade school in Leitchfield and received his higher training at Bethel College. He received a B. S. degree from Georgetown College, Georgetown, Kentucky, 1898; M. D., University of Louisville, 1901.

Began practice at Jet, Oklahoma, 1901. Postgraduate work, New York Polyclinic Hospital, 1903. Married Mary Davis Christian of Lynchburg, Virginia, 1909. Post graduate work, University of Vienna, 1909.

Founded the College Sanatorium, 1914; Farm Sanatorium, 1923. Professor of Clinical Medicine, University of Oklahoma since 1926. Dean of the School of Medicine since 1931.

Member of: American Medical Association, Southern Medical Association of which he was President 1931-1932, American College of Physicians, Oklahoma State and County Medical Association, Oklahoma City Academy of Medicine, Oklahoma State Public Health Association, National Tuberculosis Association, American Sanatorium Association, American Climatological and Clinical Association.

DOCTORS AND POLITICS

The medical profession should be vitally interested in the administration of our government. Laws are made which are adverse to the welfare of the people of the state, and not in accordance with the best judgment of medical science. Men are

elected to office who are against the administration of new discoveries for the protection of the people. These men are not even versed in the common laws of sanitation, and seem to lose sight of even the most aged customs for the care of the sick. The medical profession stands idly by while law-makers are elected who are adverse to even a suggestion for the protection of the people and the medical profession.

The daily papers have been carrying a notice of certain changes to be made at the University Hospital. The Oklahoma State Medical Association, so far, has not been given a cordial consideration as to who they think might be of benefit in the institution in which we are vitally interested. I shall from month to month, try to awaken in the hearts and minds of the medical profession, their importance in the community, not only as one to relieve suffering humanity; but a dormant force in the political life which should stride forth and claim their place. At least each county medical society should have a legislative committee. This committee should investigate all proposed politicians in the county who will seek public office, making sure of their favorable consideration of the people as directed by the medical profession. Let us stop adverse laws and officials in the beginning, rather than try to destroy them after they are in power.

—Louis H. Ritzhaupt, M.D.
State Senator, Guthrie.

YOUR MOUTH—KEEP IT CLOSED

Chapter 79, Article 8, Section 8813, Oklahoma Statutes, clearly defines "Professional Conduct."

Among these are: "The wilful betrayal of a professional secret, to the detriment of a patient."

It will be observed that the above indicates that a doctor may tread upon very dangerous ground in:

1. His statement may lay him liable to prosecution for criminal slander.

2. It may not only do the above, but by reason of this legal clause, it may deprive him of his right to practice medicine. A very serious matter indeed. The physician and nurse, like a priest, receiving a confidence, acquired through information due to their peculiar relation, may not disclose such information in any guise or form. The law rightly demands, that information acquired by reason of the relation existing between physician and patient that the physician must hold such information as sacred and inviolable.

Not even a Court may force a physician to testify to information given by reason of this trust placed in him by his patient, and the physician may only disclose information so acquired by the patient's assent alone. Of course the physician may testify to matters that any ordinary person may testify to, but he cannot testify that he treated the patient for syphilis, gonorrhea, etc., because it humiliates the patient in question.

The above is written purposely by reason of the fact that certain small, thoughtless (often malicious) physicians are too prone to talk about their ex-patients. It should also be remembered that he may not say one word which would be detrimental or humiliating to the patient in the case.

The writer cannot conceive of anything so "scrubby" and unprofessional as a medical man standing on the street corner of his little gossipy village and almost shouting from the housetops information he has acquired from a particular patient.

For these reasons above noted a physician should watch his step in order to avoid possible trouble. Even if his statement is absolutely true he has no right to make it if it injures the patient in question. The best thing to do is to keep one's mouth closed and the tighter the better.

THE INTERNATIONAL ASSEMBLY of the Inter-State Postgraduate Medical Association of North America will be held in the public auditorium, Cleveland, Ohio, October 16-20, 1933. Many distinguished teachers and clinicians will appear on the program. A major list of the names of the contributors to the program, with additional information appears on page XXI of this Journal. All members of The Oklahoma State Medical Association are cordially invited to attend. Registration fee of $5.00 admits all members of the profession in good standing.

Editorial Notes—Personal and General

DR. W. P. FITE, Muskogee, spent the month of August vacationing in Minnesota.

DR. H. A. ANGUS AND FAMILY, Lawton, have returned from a three weeks sojourn in Chicago.

DR. W. S. IVY, Duncan, who was injured in an automobile accident near McLean, Texas, is reported improving.

DR. E. P. HATHAWAY has resumed his practice in Lawton, after a month's service at Fort Sill in the C. C. C. work.

DR. AND MRS. JOSEPH ANTONY, Lawton, spent their vacation at the Chicago Fair and a tour of the Eastern states.

DR. AND MRS. R. M. HOWARD, Oklahoma City, left the early part of August for Europe, where they will spend six weeks in Switzerland.

DR. AND MRS. E. BRENT MITCHELL, Lawton, recently returned from a visit to the east, spending several days at the Century of Progress Fair enroute.

DR. C. A. THOMPSON, Muskogee, will attend the Annual Conference of Secretaries of the American Medical Association, which meets in Chicago, September 22nd and 23rd.

DR. J. P. GIBSON, assistant physician at the Kiowa Indian Hospital, Lawton, has resigned, effective September 1st, to accept a position in the Christian College, Abiline, Texas.

DR. AND MRS. C. R. SILVERTHORNE, and Dr. and Mrs. C. E. Williams, Woodward, have returned from Denver, where Drs. Silverthorne and Williams attended an Eye, Ear, Nose and Throat Clinic.

WOODS-ALFALFA COUNTY MEDICAL SOCIETIES held their July meeting at Winchester Lake on the Salt Fork, July 25th. Fishing was the order of the afternoon, with a picnic dinner at 6:00 P. M., after which papers by Drs. Frank H. McGregor, Mangum; and T. D. Benjegerdes, Beaver, on "Goiter" were heard.

—o—

DOCTOR R. H. HANNAH

Dr. R. H. Hannah, pioneer physician and surgeon of Lincoln County, died at his home in Prague, July 17th, of a heart attack. He was 75 years of age.

He was born in Franklin County, Kansas, 1858. He graduated from the University of Pennsylvania in 1881; he graduated from the Medical College of Memphis, Tenn., in 1886, and in 1906 completed his training at the St. Louis University of Medicine.

Dr. Hannah is survived by his wife and two sons.

DOCTOR PAUL SANGER

Dr. Paul Sanger, 59 year old pioneer physician of Drumright, died July 25th, following a heart attack.

Dr. Sanger was born at Fort Smith, Ark., August 25, 1874. He moved with his family to Oklahoma at an early age. He was educated and graduated at the McIntyre Institute of Tennessee, training school for Vanderbilt University, in 1894. He lived and practiced at Yukon for several years.

Dr. Sanger was a former President of the Creek County Medical Society.

He is survived by his wife, two daughters, a son, two brothers and two sisters.

—o—

HYPOPROTEINEMIA

According to Eli Moschcowitz, New York (Journal A. M. A., April 8, 1933), hypoproteinemia is common to many disorders and may result from loss of protein, deficient formation or destruction of plasma protein and insufficient intake of protein. Protein may be lost by way of the kidneys (nephrotic type), by diarrheas of the alimentary tract, in anasarca and by loss of blood. Hypoproteinemia due to deficient formation or increased destruction of plasma protein is one of the essential features of pernicious anemia. Hypoproteinemia resulting from insufficient intake or protein arise in the conditions previously known as war edema, famine edema, hunger edema, prison edema and the edema associated with cachexia. Hypoproteinemia produces the syndrome that has heretofore been classified under the heading "nephrosis"; namely, edema, inversion of the albumin-globulin ratio, lipemia, and usually a lowered basal metabolism. The term "nephrosis" should be relegated to those forms of hypoproteinemia that are exclusively renal in origin. "Nephrosis" cannot be classified as a disease because it has multiform backgrounds in morbid anatomy. The fundamental cause of the edema is the hypoproteinemia, and the mechanism is that suggested by Epstein: a reduction in the osmotic pressure of the serum protein. This has been conclusively shown both clinically and experimentally. The appearance and intensity of the edema parallels the reduction of the albumin fraction rather than the total plamsa protein, because the albumin has a much higher osmotic tension than the globulin and the fibrinogen, the other important protein components of the blood plamsa. The circulating electrolytes have an important influence in modifying the edema associated with hypoproteinemia, and the evidence is strong that it is the sodium ion and not the chloride ion that tends to aggravate the preexisting edema. Calcium and potassium seem to have the opposite effect. Edemas of cardiac origin are not directly related to hypoproteinemia, except in certain instances of malnutrition. In edemas of purely cardiac origin the increased capillary permeability plays the essential part. The lipemia and the lowered basal metabolism in hypoproteinemia are still unexplained.

ABSTRACTS • REVIEWS • COMMENTS AND CORRESPONDENCE

SURGERY AND GYNECOLOGY

Abstracts, Reviews and Comments from LeRoy Long Clinic

714 Medical Arts Bldg., Oklahoma City

Sympathectomy for Intractable Pain in Inoperable Cancer of the Cervix. By J. P. Greenhill, M.D., and H. E. Schmitz, M.D., Chicago. The Journal of the American Medical Association, July 1, 1933, Page 26.

These authors have performed sympathectomy of the superior hypo-gastric plexus on thirteen patients who had inoperable carcinoma of the cervix and were suffering from extreme pain. They have been gratified by the instant relief following operation in all of their cases and state that the patients have required the mildest analgesics after operation. They have noticed no disturbance of bladder function.

They state they have had no technical difficulty in performing the operation and heartily recommend its use in such cases, pointing out that there are only two satisfactory ways of relieving the intractable pain that is associated with inoperable malignant tumors in the pelvis. Both are surgical. They discuss the difficulties of the first—cordotomy with its tremendous technical difficulties and with the possibility of not completely relieving the pain in some or producing paralysis in certain other cases. They point out that the second-sympathectomy, has the advantage of less risk, is more certain, and can be performed by the gynecologist.

They review the principles of the operation, the anatomy involved and the technic required. They have followed the Cotte operation. Numerous references are given to the best literature on the subject.

Comment: Sympathectomy for the relief of pain is a valuable operative procedure which has probably not received the proper attention in this country. Certainly one feels that it is to be preferred to cordotomy where the depth of the incision into the spinal cord entirely controls the question of relief of pain. If not deep enough pain persists, if a little too deep paralysis results. Some of the French enthusiasts have done fundamental and splendid work in this field of sympathetic nervous system surgery, and while their indications for the operation are considerably more extensive than we feel are justified there are a number of situations in which such surgery is an invaluable adjunct.

—Wendell Long.

A Bizarre Abdominal Tumor in a Child (Tumeur abdominale bizarre chez une enfant). By E. Apert, Medicin de l'hopital des Enfants,—Malades—Paris. La Presse Medicale, July 29, 1933.

This is a very important report because it demonstrates the supreme necessity of industrious investigation, logical thinking, and accurate discrimination.

A little girl of six years was brought to hospital with a diagnosis of acute appendicitis because there was pain in right abdomen, accompanied by vomiting.

The temperature was above 104. There was a little cough. Physical examination of the lungs was negative. There were rose spots about the hair line on forehead, neck and behind the ears. Soon there were red patches on arms and thighs.

Fortunately, the surgeon on duty excluded appendicitis because there was no abdominal rigidity, and because the temperature was too high.

It was suspected that the child was developing one of the contagious exanthemata. She was placed in isolation quarters. The eruption quickly disappeared, and there was little or no cough, but high fever continued. An interne pointed out that while the entire right side was painful there was particular sensitiveness to percussion below the right clavicle, and he suggested the possibility of a silent pneumonic area, "comme s'est frequent a cetage."

The chief of the service examined the patient. He noted that the entire right side of thorax and abdomen was painful, and that pressure increased the pain. It was more acute in costo-vertebral angle. Flexion and extension of the leg were painful. He suggested psoitis or a perinephritic phlegmon.

The surgeon who had seen the patient on admission saw her again. He was still more convinced that she did not have appendicitis because there was no rigidity and no evidence of peritoneal irritation, notwithstanding the prolongation of the illness. He did not believe that there was a phlegmon in kidney area because there was no contraction of the sacro-lumbar musclar mass. He thought that the pathology was higher up, and ventured the suggestion that it might be an osteomyelitis of a transverse process.

The temperature remained above 104. There was no more cough. Auscultation was negative. There was hyperesthesia over entire body, but the most tender point, on light pressure, was in the subhepatic region. These were the findings in the service of general medicine to which patient had been transferred.

Palpating deeply, but with as much gentleness as possible, one was able to feel a soft, rounded tumor extending downward from the right costal border. It did not extend into the loin, but it could be felt bimanually with the fingers of one hand in the loin while the other hand made counter pressure over the tumor. The presence of this tumor brought forward other vague hypotheses, but the entire situation was made clear when a radiograph showed a triangular pneumonic area in middle and outer portion of right lung, while another series of radiographs made in an ingenious way a few days later, after inflation of stomach and intestine showed that the "tumor" was a congenital enlargement and prolongation of right lobe of liver. On the same day that the first radiographic work was done there was a typical crisis, the temperature disappeared, and the patient quickly recovered, without any change in size or character of the abdominal "tumor." It was then perfectly clear that all the symptoms had been produced by a "silent" pneumonia.

Calling attention to the extreme rarity of its recognition in children and to the relative frequency of its

recognition in child-bearing women with relaxed abdominal walls, the author relates that the interesting deformity of the liver was described by Cruveilhier nearly a century ago; that Trousseau discussed it in 1864; that Chauffard gave it the name of "languette hepatique," and that Pichevin called attention to the errors that its presence might engender, in 1882. It is known in Germany as the lobe of Riedel. The article of this author did not appear until 1888. In it he spoke of the deformity as "processus linguiforme."

Comment: 1. No more valuable duty can be performed by physician or surgeon than the making of a definite, and often life-saving differentiation where pain and hyperesthesia of the abdomen is associated with pneumonia or pleurisy. It must not be forgotten that pain and hyperesthesia of the abdomen may be associated with toxemias of various diseases like tonsillitis, la grippe and other infectious processes.

2. I have seen several patients, practically all of them women, with Cruveilhier's, or Riedel's lobe in connection with cholelithiasis. In one woman of between 65 and 70 the tongue-like prolongation extended to the level of the anterior superior spinous process of the ilium. For many months it was confused with a movable kidney. Later there was epigastric distress, followed by pyloric obstruction. Operation was not permitted and there was death from inanition. Autopsy showed the elongated right lobe of liver, a large, tightly distended gall bladder containing one stone, and carcinoma of pylorus with complete obstruction.

—LeRoy Long.

Prolonged Compression of the Choledochus by a Benign Adenopathy (Compression Prolongee du Choledoque par une Adenopathie Benigne). By M. M. Brule, Costedoat and Gatellier. La Presse Medicale, July 15, 1933.

This is a report made at the meeting of the Societe Medicale des Hopitaux, Paris, July 7, 1933.

A strong boy of 15 developed a jaundice which at first had the characteristics of a benign infectious jaundice. Later there was complete rentention of bile. Seen in the eleventh week, there was profound jaundic and enlargement of the liver. The clinical picture was that of obstruction of choledochus without any clear indication as to the cause of obstruction.

At operation a gland about the size of a cherry seed was found fixed at the junction of hepatic and cystic ducts. No other lesion was demonstrable.

The gland was removed, after which bile was aspirated through a small needle introduced into the choledochus. Following operation, the jaundice disappeared and recovery of the patient was complete.

Histologic examination of specimen showed that it was a simple lymphoma, the cause of it being obscure, since there was no demonstrable inflammatory process in the neighbodhood.

—LeRoy Long.

Dysfunctional Uterine Bleeding—Results In Treatment With Extracts of the Urine of Pregnant Woman. George Van S. Smith, M.D., and John Rock, M.D., Brookline, Massachusetts. Surgery, Gynecology and Obstetrics, July, 1933, Page 100.

These authors are reporting the results obtained in the treatment of fifty-six patients with dysfunctional uterine bleeding with Antuitrin-S. They have recorded as cured twenty-eight, benefited twenty-two, and unrelieved six. There were two groups of cases: menorrhagia, twenty-four and metrorrhagia, thirty-two. The dosage most often used in the menorrhagia group consisted of four to six injections of five to ten cubic centimeters over four to ten days. The average dosage in the metrorrhagia group was twenty to forty cubic centimeters of Antuitrin-S given in three to ten cubic centimeter amounts over a period of some three to ten days. They point out that there has been considerable variation in the potency of the drug supplied.

They feel that the treatment avoided operative procedure and irradiation in some of the patients and that cessation of flowing or normal menstruation followed treatment sufficiently often to be more than coincidental. It is their belief that Antuitrin-S has seemed more effective when administered while patients were flowing, that is, in controlling rather than preventing menorrhagia. They also point out that in a few instances the treatment seemed to cause a temporary increase in bleeding or a prolonged staining. On the other hand they also noticed that amenorrhoea and delayed menses occurred often enough to seem related to the treatment.

They also state that relief in cases of endometriosis, pelvic inflammation and fibroids can be taken as additional evidence that the bleeding in these diseases may be primarily dysfunctional and associated only indirectly with the condition.

They likewise point out that the use of Antuitrin-S in bleeding cases presupposes as careful a diagnosis as is possible to be made.

It has been thought that the effect of Antuitrin-S was due to the luteinizing of the ovary with its indirect effect upon the endometrium. These authors have studied the urine of their patients by injecting it into immature rats to determine the presence of the hormone which ordinarily produces follicle ripening of the immature ovaries. They found that in a number of the patients treated that Antuitrin-S this follicle ripening hormone was present during the flow but disappeared when treatment with Antuitrin-S was inaugurated. They speculate as to the possibility of the mechanism of relief being a direct counteraction to this pituitary follicle ripening hormone, which is present in the blood and also found in the urine of flowing women. If this is true the luteinizing effect upon the ovary is but one feature and probably not the most important.

Comment: Much good work in the endocrinology of gynecology has been done in the Brookline Free Hospital for Women and this is additional evidence of it. It is quite apparent that good workers such as these authors are both cautious about the use of such drugs as Antuitrin-S, as clear as possible in their diagnosis and as honest as can be expected in the detailing of results.

—Wendell Long.

EYE, EAR, NOSE and THROAT

Edited by Marvin D. Henley, M.D.
911 Medical Arts Bldg., Tulsa

Hipotonia Ocular Con Hemorragias Recidivantes En El Vitreo. (Ocular Hipotonia with Receding Hemorrhages in the Vitreous). Por El Dr. Jose Moron, Sevilla. Archivos De Oftalmologia Hispano-Americanos Julio De 1933.

Two case reports of repeated intraocular hemorrhage are given including extensive laboratory work and quite detailed objective and subjective examination of the patients. Etiology remained idiopathic.

At the time of the initial inspection the Schiotz tonometer readings were 7mm. in the first patient and 11 mm. in the second patient. Both eyes were affected in the first patient and only one eye in the second patient. Lagranges' colmatage was used in both cases. Hypodermic injections of calcium were given every other day. Vision reported improved from light perception to 3-10, 9-10, and normal, with no recurring hemorrhage from the date of the first colmatage. Tension recorded at the last visit of the patients was 19 mm. and 17 mm. respectively. Moron states that ocular tension is regulated by cephalic blood pressure and watery disposition, and is subjected to the variations of the local circulation. Hipotonia appears frequently in cases of illness in which the wall of the blood vessels are injured such as in syphilis, alterations of the renal functions, arteriosclerosis, diabetes, etc. Repeated hemorrhages in the vitreous more often cause hypertension than hypotension. Hemorrhages are precipitated by the doing of heavy work, during digestion, and during greater arterial tension. By the thickening of the texture of the zone considered filtrante the ocular tension is increased. Increase of ocular tension serves as a check for the hemorrage by opposing more tense ambiente to less vascular pressure of the vitreous.

General Considerations for Radical Sinus Surgery. George Morrison Coates, M.D., Philadelphia. Annals of Otology, Rinology, and Laryngology. Vol. XLII. No. II, June, 1933.

The difference between and the necessity of radical surgery and conservative operative methods for sinusitis is very widely discussed. Opinions vary greatly; Eugene R. Lewis, believes all sinus operations are radical and Coates states that the method one surgeon considers radical is termed conservative by another. Any external operation on the accessory sinuses may be and certain forms of intranasal surgery are radical, relative to the rudiment of danger and the amount of tissue destroyed. Restoration of the sinus to normal condition by acquiring proper aeration and drainage, with very little destruction covers conservative surgery while radical surgery consists of the removal of large parts of the bony wall and of its lining membrane which necessitates obliteration or change in shape or size of the cavity. Under the former definition comes correction of obstructive septal deformities, removal of polypoid hyperplasias, of portions of the middle turbinate that block sinus ostia, drainage of individual ethmoid cells by the removal of small portions of their inferior or mesial walls, enlarging the ostia of the frontal or sphenoid sinuses, and window openings through the mesial wall of the maxillary sinus, either in the inferior or middle meatus. Removal of the entire mucous membrane lining, whether they be frontal, ethmoid, sphenoid or maxillary sinuses, under local or general anaesthesia, where the object is the entire removal of all diseased tissues; or any intranasal operation performed to acquire these results must be classified as radical surgery, since it would be unwise to create drainage with the original source of infection remaining. In the case of an extra dural abscess the approach must be by the way of the internal wall of the frontal sinus, which should be inspected and if necessary removed in all suspicious cases. Eradication of the focus in the most radical way is called for in meningitis when all areas of infection but acute or chronic disease of the sinuses have been dismissed. Indubitable necrosis of the walls of the frontal, ethmoid or maxillary sinuses, as demonstrated by fistula formation or otherwise, calls for radical operation, as do containted tumors of any of the sinuses. This applies not only to operable malignant growth but also to osteomata and particular cases of fibromata that have invaded the sinuses. Persistent osteomyelitis of the skull generally necessitates a radical clean up of underlying sinus infection, although opinions may differ as to the expedience of continued removal of large areas of infected bone.

As a general rule cases of orbital cellulitis that do not respond to conservative treatment in the early stages and pus continues forming call for radical sinus treatment of the frontal, ethmoid, and sometimes the maxillary sinus. Although occasional cases of extension of ethmoid infection do recover after conservative intranasal treatment, the external approach is generally the best, while in rapidly progressing or neglected cases, the need is definite.

Manifestations for radical surgery in other eye ailments are less positive. In previous years it was believed that retrobulbar neuritis was cured only by radical spheno-ethmoid drainage but now it is known that infections from teeth, tonsils, and simple defects in aeration of the posterior sinuses cause many such cases.

Headache without doubt is one of the most important complaints of patients. After other treatments have failed and the pain increases in intensity and frequency, radical surgery is advised for relief. However, assurance should be had that the pain is of sinus origin. If the patient does not receive whole or partial relief, all operations for headache are not necessarily condemned since the diagnosis may have been wrong or the operation not radical enough to have removed all infected cells. Usually one of these two facts is responsible for the failure.

Day laborers may not be inconvenienced by a profuse discharge, anterior or posterior in type, but persons of sedentary occupations may so be incapacitated for work. Nasal crusting and discharge associated with obnoxious odor is a relative indication depending upon the amount of annoyance caused. The patients themselves are rarely aware of the odor in their nose so those with whom they are associated are to be considered. All cases of bad breath cannot be attributed to sinus disease (nor are they all cured or obscured by Listerine).

Having made a thorough study of the case the careful surgeon proceeds with the treatment or operation which he feels will be the most beneficial to his patient, but he will not attempt radical surgery without a complete knowledge of anatomy and applied anatomy of the parts under consideration. These statements have been pointed out many times by the most eminent students of accessory sinuses.

Nasal Sinuses: Practical Considerations of General Interest. Dr. Henry M. Goodyear, Cincinnati. The Laryngoscope. Vol. XLIII, No. VI, June, 1933.

Goodyear reminds us again that all sinuses are not present at time of birth. The ethmoids, the maxillary sinuses, and the sphenoids are functioning in the newborn. The sphenoid is fully developed at the age of ten years and the anterior and posterior ethmoids at fifteen years. The frontal sinuses begin to appear in the second or third year and continue their development to the eighteenth or twenty-fifth year. These are really an upward growth of the anterior ethmoid cells. An early infection of the ethmoid cells may account for an absence or incomplete development of the frontal sinuses. The maxillary sinuses are the most constant, In the first year of

life they are about the size of a pea. Their growth is delayed until the eruption of the teeth, since they develop in a downward direction.

The mucous membrane lining of the nose is continous with that of the accessory sinuses. It is reasonable to assume that sinus infection in children is much more common than usually suspected. Coryza, common colds, and eventual sinus infection terminate favorably more often in children because the natural ostium is much larger than in adults. Bronchitis, bronchiectasis, asthma, pyelitis, nephritis rheumatic fever, malnutrition, ocular conditions, and recurrent fevers are some of the sequelae mentioned of sinus infection in children.

A suggestive picture of a chronic sinus infection is that of an underweight, listless, pale child, with a nasal discharge, difficulty in nasal breathing, often cervical adenitis, and the history of frequent prolonged colds. Excessive lymphoid tissue on the pharyngeal wall is also important. If for no other reason than aeration and drainage, tonsils and adenoids should be removed.

Allergic cases can be differentiated by a careful history and examination. A new theory is advanced in using an acid instead of an alkali in allergy. Two cases are cited to substantiate the theory. Endocrine therapy was used successfully in a child after the various other methods had failed.

Ethmoid and maxillary sinus infection occur more often in adults. If after conservative treatment for a few weeks, the infection is not cleared up, an operation is advised. Patients who have refused a radical operation and consented to an intranasal opening have often had as good results as if they had submiteed to the radical operation. A cough is present in about twenty per cent of the chronic sinus infections. Intraorbital cellulitis, abscess, and teeth cause many maxillary sinus infections. "With the most liberal consideration the canine route should not be used for drainage for more than a few days of a week."

Pain at the root of the nose, the temporal and occipital regions, and over the vertex usually signifies an acute sphenoid infection. Central scotoma results from sphenoid and posterior ethmoid infections.

Comments: That too much radical nasal surgery has been done, with doubtful results, none can deny. It is here shown that conservative treatment many times benefits the patient as much as radical surgery.

TUBERCULOSIS

Edited By

L. J. Moorman, M.D.
304 Osler Bldg., Oklahoma City

Tuberculosis and Measles. J. L. Kohn and H. Koiransky. Amer. J. Dis. Child., December, 1932.

This study is based on the examination of 20 children with measles, all of whom were known with a reasonable degree of certainty to have been infected with tuberculosis before measles.

A positive tuberculin test was obtained in eighteen. In the two who were not tested, necropsy revealed an old tuberculosis. Frequent roentgenograms were made during and after measles, and in 15 of the cases plates taken before the onset of measles were available for study. The patients could be classified roughly into 6 groups as regards clinical and X-ray findings: 1. Four cases in which a small area of pulmonary infiltration with hilar adenopathy present before or at the onset of measles showed progressive extension of the infiltration until death ensued five days to four months after the onset of measles.

2. Four cases, showing a similar picture in the lungs previous to measles, in whom scattered opacities subsequently appeared in the lung fields, accompanied by dulness, fine rales, and scattered areas of bronchial breathing, as well as further enlargement of the mediastinal shadows. These children were very sick, but in the course of several weeks improved, the physical signs and X-ray finding receding.

3. Two cases with the so-called primary pulmonary complex. During the measles there was an additional hazy area of infiltration surrounding the site of pulmonary infiltration, from which strands radiated toward the hilar region. This hazy area disappeared entirely within a few days. One of these children died subsequently of tuberculosis meningitis.

4. Two cases that developed large shadows in the lung following the onset of measles, with little temperature reaction and few abnormal physical signs. These shadows persisted for months, the patients doing well.

5. Four cases in which, in addition to scattered areas of pulmonary infiltration, a pleural effusion appeared during or soon after the measles. One of these children (included also in group 1) died of extensive pulmonary tuberculosis and another of tuberculous meningitis. The other two cases when examined fifteen months after measles still showed some fluid as well as thickened pleura.

6. Five cases with very little pulmonary infiltration but with enlargement of the lymphatics of the posterior medastinum and at the bifurcation larger in extent and denser than similar shadows seen in measles in which previous tuberculosis had not been suspected. After the measles these children recovered rapidly, and the size of the hilar shadow decreased.

Conclusions of too rigid a nature cannot be drawn from this study, particularly since roentgenographic interpretation of pulmonary infiltrations is frequently open to error. However, it would appear that in many cases measles does contribute to a spread of a previously existing tuberculous process. In the six children that died (5 of whom were autopsied) this deduction could reasnably be made in all but one instance.

Tuberculophobia. Miles J Breuer.

This author in his paper, first likens the phobias which are connoted by the word "tuberculosis" to those which arise at the mention of "heart disease." The latter have always been recognized and consequently the physician has learned to temper his conversational terms in dealing directly with the patient.

In the realm of tuberculosis, the importance of psychology, and an understanding of the patient's mental bearing have become only recently regarded as a major factor to guide the attending physician in his dealings with the tuberculous patient. Previous to the last decade or two, the majority of the cases diagnosed as pulmonary tuberculosis were so far advanced that the disease itself was ample worry and the matter of a neurosis was an incidental problem. However, in more recent years the importance of the so-called early diagnosis has been so widely stressed and the technique of accomplishing it has been distributed among the general profession with sufficient

thoroughness, that an increasing number of early and low-grade cases are being recognized.

In the words of the author: "The ambulant patient, the patient with a minimal lesion, the constitutional chronic whose tuberculosis is incidental, are all being informed that they have tuberculosis of the lungs." To the general public, the word "lungs" is more terrible than "heart." It carries with it all sorts of stigma and visions of incurability, pilgrimage to other climates, and certain death, all of them relics of the Dark Ages of tuberculosis during the past century.

It is recognized that so far, the chief weapon against the disease is early diagnosis, coupled with proper treatment. If further strides are to be made toward lowering the mortality, early diagnosis must be stressed and proper treatment augmented to insure as far as possible against the progression of the low-grade case into one far advanced with but small hopes of recovery.

It is plain to see, then, that the physician must study his case well, and in the light of the patient's temperament, must guide him in such a manner that he will neither be overly alarmed nor, on the other hand, take the diagnosis too lightly and allow the disease to become progressive and therefore endangering the life of the patient.

Due to improper or hasty handling of minimal cases, many are allowed to become serious neurotic problems and remain permanently handicapped and incapacitated because the mental factor interferes with proper clinical recovery, or if clinical recovery has taken place, it interferes with the resumption of useful function in society.

Contrary to this type of patient, there are those who are prone to take too lightly a diagnosis of minimal tuberculosis, and consequently, fail to take proper and adequate steps toward bringing about arrestment. It is a sad sight indeed, to see such cases who have been fortunate enough to be diagnosed early, yet the physician has fallen down in failing to recognize the patient's reaction and has not taken the time and interest to thoroughly instill into the patient the importance of proper curative measures. As a result, the patient loses his big chance for complete recovery and is seen next in a far advanced, and decidedly less hopeful, state.

We have then, in dealing with minimal cases, two disastrous end results which must be carefully avoided. Only by careful study of the patient's mental and emotional state, can the physician intelligently deal with the individual case in such a way as to avoid unhappy results.

Bilateral Phrenic Exairesis in Pulmonary Tuberculosis. H. Schwatt. The American Review of Tuberculosis, August, 1933.

This paper includes a report of a case with a view of presenting indications, immediate and late results, and the legitimacy of bilateral radical phrenic interruptions in the treatment of tuberculosis.

The number of cases where bilateral paralysis has been done are relatively few. It was thought at one time by the older physiologists and clinicians that bilateral paralysis of the diaphragm was not compatible with life. However, it has been subsequently shown not to be the case, and, in fact, in some cases with complete paralysis of the diaphragm, there is little or no respiratory embarrassment. The degree of the respiratory embarrassment however, is obviously proportional to the extent of disease and the location of the undiseased lung tissue which is carrying the load of respiratory function.

Since this procedure has for its object the splinting of the lungs, the results of its use will be good only in so far as the selection of the cases in which it is to be used is carefully made. The danger of an excessive rise of the diaphragm may be avoided to a certain extent by restricting the treatment to those cases in which it has been impossible to induce artificial pneumothorax, and by consecutive, rather than simultaneous, nerve operations.

In cases where pneumothorax is impossible, due to more or less complete obliteration of the pleural space, it is safe to assume that there are adhesions of the diaphragmatic pleurae which will prevent excessive rise. On the other hand, a rise sufficient to be of considerable benefit has been noted in cases where such diaphragmatic adhesions were quite extensive. The author feels that a certain interval should be allowed between operations. Such an interval permits evaluation of the effect of the diaphragmatic rise on the corresponding pulmonary lesion as well as on the contralateral lung.

The first operation obviously should be performed on the side of the more active and extensive lesion. There have been cases noted in which the effect of the unilateral paralysis and subsequent rise of the diaphragm have been so favorable, that the second operation became unnecessary. While this is the looked for result, it has been noted in other cases that the diaphragmatic paralysis on one side is followed by increased activity or reactivation and spread of the lesion. Here too the interval between operations is of great value.

The author raises the question as to the justification of permanent bilateral paralysis of the diaphragm. Temporary interruption by crushing the nerve, or novocain injection, are looked upon more favorably in the case of the second operation rather than complete permanent paralysis. In the former, the effect is a total paralysis lasting for varying months of time and sufficiently long enough to allow observations and conclusions as to the results being obtained. The author's opinion regarding this is, that following a phrenic exairesis on the more diseased side, the less radical temporary paralysis on the other side is the method of choice. The more radical operations can be undertaken subsequently if desired.

In discussing the indications, the author makes the general statement that they are essentially the same as for bilateral pneumothorax when the latter cannot be accomplished due to obliterated pleural spaces. The procedure may also be considered in cases in which a bilateral pneumothorax is ineffective in collapsing cavities; when a phrenic interruption has been done on one side and a pneumothorax on the other side; and if the latter is ineffective or can no longer be maintained or if the lower lobe is adherent. It is especially indicated in those cases in which the lesions are of a destructive nature with cavitation and are located in the basal or middle portions of the lungs.

In summarizing, the author brings forth the following as important considerations concerning the use of bilateral diaphragmatic paralysis.

1. Bilateral phrenic interruption, especially the operations producing permanent paralysis of both hemidiaphragms, must be considered as a serious procedure in bilateral chronic pulmonary tuberculosis and should be approached with considerable reservation.

2. The procedure is applicable in only a limited group of prognostically unfavorable cases.

3. Danger from excessive rise in the diaphragm

may be avoided to a great extent by limiting the procedure to cases in which the pleural cavities are obliterated by adhesions and by allowing for an interval of at least one month between the operations.

4. The method of choice for the second operation is one which does not produce a permanent paralysis of the hemidiaphragm but eliminates its function for three to six months.

5. The procedure may be followed by a striking clinical and anatomical improvement in hopelessly advanced cases without serious disturbances of the respiratory capacity.

6. Too much should not be expected in most cases, since even in unilateral operations, the results are uncertain and cannot be foretold.

—o—

DERMATOLOGY, X-RAY AND RADIUM THERAPY

Edited by William E. Eastland, M.D.
Lain-Roland Clinic, M. A. Bldg, Okla. City

Fungicidal Action of Some Common Disinfectants on Two Dermatophytes, C. W. Emmons, Ph.D., Archives of Dermatology and Syphilology, July, 1933, Volume 28: Number I.

In the consideration of this subject, the essayist reviews the literature in regard to other workers' methods, pointing out some technical labaratory faults in their tests.

The author used twenty different drugs in his tests, basing their efficiency on the relative value of phenol as a fungicide. The following table details his painstaking results.

Fungicidal Action of Various Disinfectants

Fungicide	Phenol Coefficient T gypseum	M. albicans
Iodine (from potassium iodide solution)	3,125	3,600
Iodide (from tincture)	2,974	3,480
Sodium hypochlorite (from surgical solution of chlorinated soda	2,338	2,090
Sodium ethyl mercurithiosalicylate	146	
Hexylresorcinol	78	67
Mercuric chloride	74	76
Selenium sulphide	44	6
Thymol	26	17
Phenyl-mercuric-nitrate		14
Malachite green		10
Gentian violet	4	4
Potassium permanganate		7
Salicylic acid	1	7
Compound solution of cresol	1	3
Tri-ethanolamine polysulphide		
Tri-ethanolamine (5.50% sulphur)	2.5	
Formaldehyde	2.5	2.5
Copper acetate		2
Benzoic acid	1	2
Phenol	1	1
Sodium sulphide		0.4

Emmons very wisely correlates the facts bringing out the idea that the actual action of medicine in a test tube and on the skin may be quite different. For example, salicylic and benzoic acid has proven to be a very definite fungicidal agent clinically, but its phenol coefficient rated it rather poorly. He likewise stated that iodine with its superior fungicidal value "is of therapeutic value as far as it can penetrate to the layers in which the fungus is growing.

"Sodium hypochlorite as used in surgical solution of chlorinated soda is highly fungicidal when freshly made up." This is the preparation that has been found to be of value around dressing rooms for the prevention of spreading fungus infection.

The Use of Extract of Spleen in Certain Dermatoses, Max S. Wien, M.D., and Minnie Oboler Perlstein, M.D., Archives of Dermatology and Syphilology, June, 1933, Volume 27, Number 6.

The consideration of this subject first reviews the literature showing that other investigators have found that the use of spleen extract in certain dermatoses varies from practically no results to very excellent results as reported by one enthusiastic writer.

The authors present a series of fifty cases as follows. twenty-five of eczema; the second group were cases of "seborrheic dermatitis, infectious eczematoid dermatitis, hypostatic eczema, various forms of nondescript dermatitis of limited extent and of relatively short duration or secondary toxic exfoliative dermatitis."

Their conclusions revealed that the spleen extract is of distinct value in urticaria, dermatitis herpetiformis and secondary toxic exfoliative dermatitis. It is of limited usefulness in the temporary alleviation of certain phases of the subjective sensations in eczema. They contend that treatment must be prolonged, using a series of injections approximating 10 gm. of spleen substance being given at each injection. They do not share Paul's "rapid findings of instantaneous cure" by spleen extract.

Some Nonspecific Dermatoses—Their Responses to Spleen Extract, Theodore Combleet, M.D., Archives of Dermatology and Syphilology, June, 1933, Vol. 27, Number 6.

This article considers the use of spleen extract more on the basis of laboratory investigations as compared to the above article.

The author's summary and conclusions are as follows:

Summary and Conclusions

"Two patients with dematitis herpetiformis and four with eczema were studied for from one to three months. Eighteen different observations were made every other day, before and during therapy.

1. The great general instability of the factors studied was the most outstanding observations.

2. This denotes an inability to adjust rapidly to stimuli or an over-compensation for them.

3. Such measurable instabilities are probably a few of the bases for such vague, inclusive terms as Czerny's diathetic state.

4. The capacity for allergy can be built from such a background.

5. In dermatitis herpetiformis clinical improvement was associated with: (a) increased capillary permeability; (b) an increase in the carbon dioxide content and Ph of the blood; (c) a decrease in the potassium calcium ratio; (d) an increase in inorganic serum phosphorus, and (e) a decrease in blood cholesterol.

6. In chronic eczema the only correlation noticed

was a shortening of the blister time, which indicates increased arteriolar sympathetic tone.

7. Injections of spleen extract cause a decrease in the eosinophils count which lasts for about three days.

8. This change in the number of eosinophils cannot be corelated with clinical changes.

9. Previous injections of spleen extract decrease the inflammatary response of a positive patch test.

10. There are no histologic changes in a dermatitis from the use of spleen extract.

11. At times spleen extracts are of distinct but limited value in eczema and other nonspecific dermatoses."

The editor of this column formerly used spleen extract in a total number amounting to about 8-10 cases. In cases of eczema, nearly all showed considerable temporary improvement, but lasting results were not obtained. Urticaria, in a general way, gave a similar response.

—o—

R. B. DAVIS COMPANY COCOMALT

Recent developments in the study of child nutrition emphasize anew the importance of milk. It is and always will be the mainstay of the child's diet; and the continued refusal of a youngster to drink sufficient milk for his needs is indeed a serious problem.

Fortunately it is possible to convert milk into a drink all children adore. By the simple addition of Cocomalt, milk not only becomes a delicious chocolate flavor drink—but its food energy value is practically doubled. Cocomalt in milk provides extra proteins, carbohydrates and minerals (calcium and phosphorus). It is also a rich source of Vitamin D.

Thus Cocomalt not only induces youngsters to drink all the milk they require—it provides extra food-energy nourishment as well.

Cocomalt is accepted by the American Medical Association Committee on Foods.

PABLUM—MEAD'S PRE-COOKED CEREAL

Mead Johnson & Co., are now marketing Mead's Cereal in dried pre-cooked form, ready to serve, under the name of Pablum. This product combines all of the outstanding mineral and vitamin advantages of Mead's Cereal with great ease of preparation.

All the mother has to do to prepare Pablum is to measure the prescribed amount directly into the baby's cereal bowl and add previously boiled milk, water, or milk-and-water, stirring with a fork. It may be served hot or cold and for older children and adults cream, salt and sugar may be added as desired.

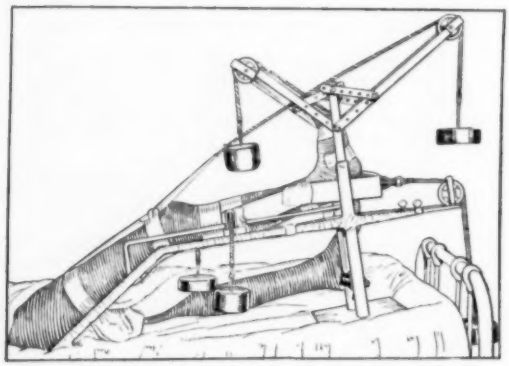
Mothers will cooperate with physicians better in the feeding of their babies because Pablum is so easy to prepare. It gives them the extra hour's rest in the morning and saves bending their backs over a hot kitchen stove in summer. Please send for samples to Mead Johnson & Company, Evansville, Indiana.

—o—

TULAREMIA: REPORT OF CASE WITH POST-MORTEM OBSERVATIONS AND NOTE ON STAINING OF BACTERIUM TULARENSE IN TISSUE SECTION

Margaret Foulger, Alfred M. Glazer and Lee Foshay, Cincinnati (Journal A. M. A., March 19, 1932), report a case of tularemia in which: (a) auto-inoculation of two fingers of the left hand by contact with the primary lesion on the index finger seems to be highly probable; (b) the use of convalescent serum was without beneficial effects; (c) lesions of the peritoneum, both focal and diffuse, are described for the first time, and (d) a new staining method revealed the presence of Bacterium tularense in tissue sections from certain of the involved organs.

Look at This Fracture Suspension Frame



A sample will be sent to any reliable surgeon or Hospital in order that they may try it out. It has the following features as to fractures:

1. Fracture of the lower extremities.
2. Diabetic ulcers, elevation and heat treatment.
3. Arthritic cases, elevation and heat treatment.
4. Buerger's Disease, elevation and heat treatment.
5. To prevent shortening deformity after fracture.
6. Various forms of paralyses where heat and elevation are indicated, and varicose ulcers.
7. It eliminates cumbersome scaffolding around bed.
8. It eliminates plaster casts.
9. It has five point adjustable suspension, longitudinal and transverse.
10. It is made of aluminum, does not show in X-ray, is light in weight and is non-corosive.
11. It has the proper knee angle as approved by the Medical profession, affording two ways preventing anklylosis.

It is not only endorsed but in daily use by Oklahoma Orthopedists and surgeons.

We would like for you to place your order for one of these suspension frames at the reduced price of only $35.00—$10.00 cash, and $5.00 per month on balance.

G. LANGE
Muskogee Artificial Limb and Appliance Company
MUSKOGEE, OKLAHOMA

HEREDITARY ARTHRODYSPLASIA ASSOCIATED WITH HEREDITARY DYSTROPHY OF THE NAILS

John W. Turner, Atlanta, Ga. (Journal A. M. A., March 25, 1933), reports an hereditary arthrodysplasia, a disorder that is transmitted from parent to child, that causes deformity of the different joints interfering with their function and that, so far as it has been possible for him to determine, has not been reported previously. His report is based on a study of two families in which thirty-five of seventy-nine persons are affected. About five years ago the ninth individual in the fourth generation of one of the families came to him as an obstetric patient. He noticed that she suffered from hereditary dystrophy of the nails and that her knees appeared flat when her legs were extended and angular when the legs were flexed on the thigh. A short while later one of her sisters consulted the author because she frequently fell when running. Her knees also appeared flat when extended and angular when flexed and it was hard to locate the patellae, which could not be found on the anterior surface of the knees. The tubercle of the tibia stood out prominently with the patella absent from its customary position. The ankles were thick, the malleoli being unusually large and contrary to the normal type, the internal mallecli larger than the external. The longitudinal arch of the foot was apparently less developed than normal, a slight degree of flatfoot being present. The shoulders showed a marked prominence of the acromial end of the clavicle, the appearance being similar to that presented after dislocation of the acromial end of the clavicle. However, in the deformity due to arthrodysplasia the step down from the acromial end of the clavicle was downward and forward to a prominence caused by the head of the humerus. Apparently the glenoid cavity of the scapula was well in front of a line drawn downward from the anterior margin of the acromial end of the clavicle, and the head of the humerus with its muscle group stool almost in bas relief. The patient was unable to extend fully the arm at the elbow, and the carrying angle was increased. The internal condyles were unusually prominent on the inner side of the elbows. The wrists showed no very marked variation from normal. It appeared that there was a slight elongation of the carpal region, and the ends of the ulnar were barely noticeable when the hand was pronated. The fingers could be hyperextended at the metacarpophalangeal and interphalangeal joints. Roentgenograms of the different joints showed deformities which may be considered characteristic. In one of the families every member showing dystrophy of the nails also suffered from arthrodysplasia, twenty-six of thirty-nine persons being affected. In the other family, twenty-seven of the forty-one persons suffered from dystrophy of the nails, but only nine suffered from arthrodysplasia, these not being specifically shown in the geneological chart. Hereditary dystrophy of the nails of the toes and fingers is a comparatively rare disorder, but not so rare that most physicians have not seen several cases. The degree of the disorder of the nail varies from almost total absence of the nail to a nail that is scarcely distinguishable from a normal nail except that it is thinner. Trophic disorders of one sort or another are frequently found in those individuals to whom the term constitutional inferiority is applied and Barrett and other authors have referred to the association of mental deficiency with this anomaly of the nails. The association of disorders of other derivatives of the ectoderm has been reported and ichthyosis, keratosis palmaris, hypertrichosis, alopecia, and premature or abnormally late eruption of the teeth have been referred to as coexisting stigmas. Indeed, the mental deficiency usually noticed in patients suffering from this dystrophy may be considered as evidence of future involvement of ectodermal structures. The defects with which dystrophy of the nails has been associated in all previous reports have been found in ectodermal derivatives exclusively. The author's patients have had no associated defect of any derivative of the ectoderm but have shown a rather marked disorder of the portions of the skeletal system, a derivative of the mesoderm.

o

COMMENTS ON INTERNSHIP

According to W. C. Rappleye, New York (Journal A. M. A., March 25, 1933), the internship has come to be widely regarded in this country as a part of the basic training for the practice of medicine, as attested by the facts that about 95 per cent of recent graduates voluntarily take a hospital experience of one year or longer, that seventeen states require the internship as a prerequisite for admission to the licensing examinations, and that a similar number of medical schools in the United States and Canada require it before granting the degree of Doctor of Medicine. The type and arrangement of the hospital period should not be standardized, however. It is important that the educational features of the internship should not be rigid or uniform for all hospitals but should provide a variety of opportunities of high quality adapted to the educational needs, previous preparation, and life programs of different individuals. The internship is only a part of the whole scheme of medicine and, as such, several kinds of internships will best meet the requirements of different students. There are 696 hospitals, representing 221,174 hospital beds and offering 6,261 internships, which are approved by the American Medical Association (1932). The mere fact that a hospital is a good hospital does not necessarily mean that it provides a satisfactory internship, for the latter requires an interest on the part of the staff in the training of the young physician and an ability to provide him with a satisfactory educational experience. If the internship is to be successful as an educational venture, some individual or group on the staff of the hospital should be responsible for seeing that opportunities are actually provided for the intellectual and professional development of the student, and that the work of the intern is properly supervised by responsible members of the staff, particularly in regard to the discussion of cases, differential diagnosis, proper treatment, and the use of the laboratory, library and other facilities in the study of patients. Only about 10 per cent of patients are hospitalized. The great majority of sick persons are not obliged to go to a hospital. Outpatient services should be used as much as possible to assist the intern in becoming acquainted with the more common illnesses and with the wide range of social and economic factors which are often important in diagnosis and treatment.

WEE MODERNS

By Berton Braley

The babies of these present days are raised upon a system,
You count their calories of food and on a card you list 'em;
They're spanked upon a schedule and petted by the clock
And you musn't ever jounce 'em and you musn't ever rock;
Physicians choose their style of dress and fix their hours of sleep
And tell you when they ought to laugh and when they ought to weep,
Their every eccentricity is catalogued and filed
For the modern type of baby is a scientific child!

Time was that mother raised them in a rather casual way,
With a bit of help from grandma—but that isn't done today;
The bringing up of babies is a far from simple art
And you need a dozen volumes and a blueprint and a chart
A clinical thermometer, a stethoscope, a scale
Some test tubes and a dictaphone that registers each wail,
The modern mother's regimen is very far from mild,
For the baby of the present is a scientific child!

Oh yes, I am describing the *modern* baby now!

Oh, the old folks sniff about it and the jesters jest a lot
But the modern type of baby is a healthy little tot,
He may be robbed of baby-talk, of many pats and kisses,
But there's a heap of colic and other ills he misses;
And in spite of all the sentiment that in our cosmos lurks
There isn't any question that the modern method works—
For the scientific baby is a husky little tad,

A CREDIT TO THE DOCTOR, AND THE MOTHER, AND THE DAD!

Copyright S.M.A. Corporation, Cleveland, Ohio.